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ABSTRACT

These career exploration curriculum guides are designed to provide infusion activities for entry-level academic courses at the high school level. Guides are provided for the areas of art, English, foreign language, mathematics, biological science, physical science, and social studies. Each guide is related to an occupational cluster and specific job family. It provides the teacher with the name of the course(s), name of unit, time allowed, major idea, objectives, content, teacher and student activities (including speaker suggestions and field trip recommendations), evaluation techniques, and materials and resources. An index indicates the page numbers for specific job titles. Representative job titles are agronomist, archaeologist, auto mechanic, cartoonist, chef, commercial artist, computer operator, dental hygienist, dietitian, editor, electrician, fish and wildlife manager, flight attendant, graphic artist, illustrator, interior design, interpreter, law enforcer, librarian, meteorologist, nutritionist, optometrist, photographer, piano tuner, psychologist, travel agent, and writer. (YLB)

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INTRODUCTION TO VOCATIONS:

CAREER EXPLORATION CURRICULUM GUIDES
FOR
NINTH GRADE STUDENTS

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New Jersey Vocational-Technical
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CE-1005

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INTRODUCTION TO VOCATIONS:

CAREER EXPLORATION CURRICULUM GUIDES FOR NINTH GRADE STUDENTS

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FOREWORD

These Introduction to Vocations Career Exploration Curriculum Guides have been designed to provide infusion activities for entry level academic courses at the high school level. They have been developed for the areas of art, English, foreign language, mathematics, social studies, and biological and physical science. Each guide is related to occupational cluster and specific job family. This provides the teacher with objectives, content activities, evaluation techniques, and additional resources.

Special recognition should be given to the Career Exploration Development Team of Haddonfield Memorial High School, which included twelve staff members. Their assistance has been invaluable in the writing, field testing, and evaluation of these guides.

John W. Williams, Director
Introduction to Vocations

INTRODUCTION

Haddonfield High School is primarily an academically oriented high school. For many years 80-90% of our graduates attended institutions of higher education. The curriculum and attitudes of the high school reflect this emphasis and, as a result, the curriculum is a very strong academic program, geared to preparation for higher education.

Vocational education, and especially career exploration and planning, have not been an organized facet of the high school curriculum and, in fact, it has been resisted by past administrations and faculties.

Recently, however, three significant occurrences caused this attitude to change. The first was the request by professional personnel, the Home School Association and over one hundred other interested parents that the high school, indeed the entire district, provide career exploration for their students.

The second occurrence was the implementation, in the Middle School, of an Introduction to Vocations program designed to expose students there to the realm of careers available to them.

Lastly, changes in the administration, largely due to retirements, make it possible to employ people who accept career exploration as a viable part of a student's education.

These Guides have been developed as a result of all three of these very related occurrences. With this Guide, teachers of ninth grade subjects can present career materials which are directly related to the subject matter which is being taught and, therefore, infuse this information directly into the existing curriculum.

These Guides have been developed by staff representing guidance, English, social studies, foreign language, mathematics, art and science. The professionals have developed curriculum activities which can be used by any teacher who is teaching these courses in a ninth grade program.

These Career Guides were developed for academic areas and include activities related to each discipline with resource materials, speaker suggestions and field trip recommendations.

The program's basic philosophy, then, is to provide all students with career related information through the present curriculum.

The preparation of these Guides has not been without its share of problems.

The eight teachers who have written the activities were largely uninformed of the basic premises of career exploration when they began this project. The coordinator and vocational divisional staff provided inservice education and continuing consultation. A major problem that arose during the preparation was that the teachers were writing and researching on their own time during the school year. I would recommend that this type of project be done in a summer workshop arrangement.

Program Objectives

1. Develop career exploration materials which can be used by classroom teachers to infuse career and vocational information into their curriculum areas.
2. Have each student in the high school develop a more heightened awareness of future career possibilities.
3. Develop this material so as to be free of sex role stereotyping and bias.
4. Develop this material so as to include information on new and changing career fields.

CURRICULUM GUIDE

CLUSTER: Construction

JOB FAMILY: Architectural Drafter

SUBJECT AREA: Art

NAME OF COURSE: Art I, Art II, Commercial Art

NAME OF UNIT: Elevation View, Floor Plan and Rendering of an Original Being - Enclosure.

TIME ALLOWED 10 Class periods

MAJOR IDEA: The possibility for a career in Drafting - a job universally available in all cluster areas - or as an Architect will be interesting to the student who successfully completes this lesson.
Goal: To generate career interest within the student who learns how to execute an architectural plan and drawing of a structure.

OBJECTIVES:

1. Introduce the career of Architectural drafting.
2. Student will create an Elevation View, Floor Plan and Rendering of a living or transportation structure of his/her own original design.
3. The student will gain and demonstrate some proficiency in the proper use of basic tools of the draftsperson.

CONTENT: The main thrust of this assignment is to enable the student to achieve a new career-awareness in the area to be studied, and to cause a product development of a finished architectural proposal for a Being - Enclosure of his/her own design.

The terms "Original Habitat" or "Being Enclosure" are used in order to avoid restriction of creativity that would occur by calling it a "House". Instead, the student is able to select from a much wider range of subjects: "Being" refers to any type of living Being, and "Enclosure" literally means any kind encapsulation with any sort of function.

ACTIVITIES: Teacher: The teacher should introduce the lesson with a lecture and discussion, supported audio-visually, that provides exciting possibilities for creative imagination. Being careful not to limit the introduction to a discussion "house design," a wide range of design possibilities should be suggested during the introduction. For instance, "Being," it should be established, includes any living Being, from Space Visitor, to the lowliest of animals. Additionally, "Enclosure" might have any function; "living", "transportation", or whatever form the student chooses.

.....Emphasis should be placed on clear explanation of the requirements: 1. That a visually accurate, graphic product which includes the Elevation View, Floor Plan (especially as regards traffic flow and function) and careful rendering displaying the Being Enclosure in its natural environment be produced by the student.

.....A quiz or essay assignment may be given by the teacher in order to reinforce acquired knowledge.

Student: The student is expected to accomplish research on his/her own initiative in order to complete the assignment with firm, secure knowledge.

.....The student should practice with T-square and Triangles until he/she can show proficiency in the proper handling of these basic tools. He/she must understand that to do neat work (absolutely imperative!) these instruments must be kept impeccably clean.

.....The student should have full awareness that the project description has purposely left wide latitude for freedom of imagination and creativity.

EVALUATION:

1. The finished project consisting of an Elevation View, Floor Plan and Careful Rendering will be submitted for grading and display.
2. Class critique and discussion pertaining to the merits (or lack thereof) of all student work will be held near the end point of the lesson.
3. At the option of the teacher, a quiz and an essay pertinent to this study may be accomplished by the students for grading.
4. If possible, a successful Designer or Architect (or both) should be invited to the classroom critique - (OR) - the critique may be accomplished in the Boardroom of one of their professional offices, if it is possible.

MATERIALS AND RESOURCES:

1. Art supplies, as needed, especially T-squares and mechanical drawing triangles.
2. Appropriate slide transparencies, as available.
3. Films:
   Jobs in Drafting: 10 min. Sterling Ed. Films, New York, N.Y. 1970
   A is for Architecture: 30 min. International Firm Bureau, Chicago, Ill. 1959
   Physical Environment: 11 min. McGraw Hill Films, New York, N.Y. 1966

4. Employment/Management Development Guide 1978
5. Occupational Outlook Handbook U.S. Dept of Labor Bureau of Labor Statistics 1978
6. Butterick's Career Encyclopedia
7. *Drafting Fundamentals* C.H. Jensen McGraw Hill 1967
8. *Architectural Drafting and Design* Allyn & Bacon 1977

CURRICULUM GUIDE

CLUSTER: Communication and Media

JOB FAMILY: Cartoonist

SUBJECT AREA: Art

NAME OF COURSE: Advanced Drawing, Painting

NAME OF UNIT: Caricature of a Faculty Member

TIME ALLOWED: 5 class periods

MAJOR IDEA: The students will gain renewed interest in drawing studies, and an awareness for a possible career in cartooning.
Goal: The students will learn many aspects of caricaturing by studying and creating an actual caricature of their favorite faculty member.

OBJECTIVES:
1. Introduce the career of cartooning.
2. Demonstrate skill by completing a life-size caricature of a faculty member.

CONTENT: Studies will include appropriate audio-visual materials in class and some research into the history of cartooning. Lesson project will be a life-size caricature of a faculty member to be accomplished by the student.

ACTIVITIES: Teacher: Special care should be taken to communicate the difference between good humor and insidious slander as the teacher introduces this lesson. Appropriate film and slide transparencies should be used to support the introduction.
.....Initial interest in the project can be encouraged by requiring each student to bring in a unique cartoon or caricature for display and discussion.

Student: Study and research will be required in order for an essay to be written which pertains to the history of cartooning.
.....Practice in drawing of cartoon figures will be accomplished at student's own initiative besides progressive efforts within the assigned class periods towards completing a life-size caricature of the student's favorite faculty member.

EVALUATION:

1. Life-size caricatures will be submitted for grading by each student.
2. An essay written by the student, dealing with a specific and major portion of cartoon history, will be submitted for grading by each student.
3. A class discussion and critique will be accomplished at the lesson terminus.
4. Display of the caricatures will be established at an appropriate place within the school.

CAREER CURRICULUM GUIDE

CLUSTER: Fine Arts and Humanities

JOB FAMILY: Ceramics

Subject Area: Art

Name of Course: Ceramics

Name of Unit: Commercial Advantages of Pottery-throwing

Time Allowed: 5-10 Class periods

Major Idea: By producing one or more pieces of pottery, and being involved in actual show and sale, the students will gain experience in ceramic marketing. Hopefully, a new awareness for a career in pottery or ceramics will ensue from study of this lesson. Goal: The student will create and produce one or more pieces of pottery for show and sale.

Objectives:
1. Introduce appreciation for careers in ceramics.
2. Create ceramics for show and sale.

Content: Students will concentrate their efforts on all aspects of producing ceramics for a show and sale. Study will include Economic and Marketing considerations, particularly as pertains to costs and profits, and supply and demand within the local area. Further effort will be expended by each student in a certain number of the very best examples of pottery he or she can produce within a limited time, for a specific event such as the Crafts Fair held annually in a local shopping mall.

Activities: **Teacher:** A special emphasis should be stressed by the teacher upon self-discipline that is required to work within a time-frame to produce a product for display and sale. Correlation should be drawn between the self-discipline that is required for successful self-employment and the individual freedom enjoyed by a freelance potter.

Student: Individual initiative for research, study and effort directed toward the successful completion of this project is expected of each student. Each is expected to "practice to the max" in order to raise his skill to the highest level and produce the very best quality.

Evaluation:

1. Determination will be made by the teacher as to the minimum quality level of work to be accepted into the Craft Fair.
2. A quiz is suggested to reinforce learning, particularly in the area of pottery merchandising.
3. Response by the public during the Craft Fair (number of sales) may be considered an informal evaluation which may be regarded a success gradient.

Materials and Resources:

1. Art supplies, as needed.
2. Film:
   Art of the Potter: 14 min. Bailey Film Assoc., Santa Monica, Calif. 1967,
   Color in Clay: 11 min Encyclopedia Brittanica 1941
   Decoration: 15 min, Bailey Film Associates, Santa Monica, Calif. 1967
3. Appropriate and available transparency slides.
4. Lovejoy's Career and Vocational School Guide
5. Occupational Outlook Handbook, U.S. Dept of Labor Bureau of Labor Statistics 1978 (Commercial Art and Display Worker)
6. Butterick's Career Encyclopedia (Craftspeople)
7. Pottery Workshop; Chas. Counts. N.Y. MacMillan Pub. Co. 1976
8. Pottery, Form and Expression, Marg. Wildenham, Reinhold 1962
9. Ceramic Formulas, John Conrad. N.Y. MacMillan Pub. Co. 1973

CURRICULUM GUIDE

CLUSTER: Communication and Media

JOB FAMILY: Graphic Artist, Illustrator, Postermaker

SUBJECT AREA: Art

NAME OF COURSE: Graphics, Art II, Commercial Art

NAME OF UNIT: Poster Design

TIME ALLOWED: As appropriate

MAJOR IDEA: The student gets involved in learning the basics of good poster design and gaining an awareness for career possibilities.
Goal: The students will produce a poster of acceptable quality showing an appreciation for the knowledge gained in this lesson.

OBJECTIVES:

1. Student will demonstrate that he/she has learned the technical aspects of content and composition necessary to the design of a successful poster.
2. Student will be introduced to the career of poster design.

CONTENT: Study during this lesson includes the elements of good poster design and the career implications of poster making.

ACTIVITIES: Teacher: Introduction of the lesson is to be accomplished through the medium of lecture, slide presentation and film, "Making the Poster".
.....Careful explanation must be made as to what constitutes good poster design:
Especially,

1. Brevity, efficiency of message.
2. Appropriate choice of lettering style and color.
3. Composition of graphic elements.
4. Visual impact.

Student: The student will demonstrate an awareness for career possibilities in Poster Design by creating a poster, the theme of which is "the invitation of young aspirants into a career of Illustration".

EVALUATION:

1. Posters completed for this assignment are collected for grading and display.
2. The class will hold a discussion and critique in which details of each poster are evaluated.

MATERIALS
AND RESOURCES:

1. Art supplies, as needed.
2. Appropriate slide transparencies, as available.
3. Films:
   Poster Making-Design and Technique 10 min. Bailey Film Assoc., Santa Monica, Calif. 1953
   Posters: 15 min. Paramount Oxford Communications Los Angeles, Calif. 1968
4. Occupational Outlook Handbook U.S. Dept. of Labor Bureau of Labor Statistics 1978
5. Butterick's Career Encyclopedia
6. The Poster in History Max Gallo, American Heritage Pub. Co. 1974
7. Posters, a Concise History, John Barnicoat, Abrahms 1972
8. Posters of Protest and Revolution, Maurice Richards, Walker 1970
9. Careers in the Arts, Eliz. McCausland Day 1950

CURRICULUM GUIDE

CLUSTER: Communication and Media

JOB FAMILY: Illustrator

SUBJECT AREA: Art

NAME OF COURSE: Art I, Art II

NAME OF UNIT: Use of Mood Elements to enforce the Graphic Idea

TIME ALLOWED: 5 class periods.

MAJOR IDEA: The student will discover how to represent important pictorial moods through the use of color, form and line. Emphasis is placed on the Mood Elements as a major "tool" of the Illustrator, encouraging the acquisition of skills important to the student considering a career in Illustration.
Goal: The student will demonstrate how to represent important pictorial moods through the use of color, form and line.

OBJECTIVES:

1. The student will enhance his/her appreciation for careers in Illustration.
2. Discover the importance of strengthening the pictorial idea through appropriate representation of mood.

CONTENT: The need for career Illustrators continues to be strong because they convey the pictorial idea that, too difficult to be done by camera, must be created by the Artist. One important aspect of successful illustration is the ability to represent mood by graphic means. The personality, or mood of an illustration is very important toward "selling" the idea which is portrayed: the mood must be appropriate to the idea for it to be convincing.

In this lesson, mood will be represented pictorially by the handling of line and form. (Ex: Drooping lines and heaviness of form that is the willow tree symbolize melancholy.)

It will be shown in this lesson that mood can be determined by dominance of a particular color, as symbolized by tradition (ie: red symbolizes danger, agression.) and psychologically in that it evokes certain feelings (ie: pale blue or green encourage feelings of calm.)

ACTIVITIES: **Teacher:** The lesson should begin with an introductory lecture and a transparency, slide or film (that which is available) presentation that conveys the benefits of the profession and the Illustrator in action. Examples of attractive and unique illustrations should be shown.

.....Excitement of creativity and freedom of expression should be portrayed. The vast array of career possibilities for the Illustrator in many fields of endeavor should be explained. Stress on mood and personality - in conjunction with their individual purpose - should be emphasized.

.....List on the chalkboard the numerous ways, as determined through class discussion and research, that line, form and color may psychologically and symbolically represent mood. (ie.):

1. Line:
    a. Softly curving, horizontal lines - peace, calm.
    b. Angular, jagged lines - anger, agitation.
    c. Vertical, straight lines: attention, formality.
    d. (etc.)

2. Form:
    a. Fat, soft forms - affluence, good times.
    b. Skinny, slim forms - nervousness, meagerness.
    c. Heavy, ponderous forms - solidarity, confidence.
    d. (etc.)

3. Color:
    (symbolical)
    a. White - purity
    b. Purple - royalty
    c. Yellow - cowardice
    d. (etc.)
    (Psychological)
    a. Black - depression, morbidity
    b. Bright green - confidence, success
    c. Bright blue - established, immovable
    d. (etc.)

Student: Using appropriate line, form and color, the student will illustrate depicting the following situations:
  a. Your high school football team has just won the biggest, most important game of the year. You and your friends are just leaving the stadium in happy celebration.
  b. Your best friend has just been killed in an auto accident, and several friends and relatives sit in mournful silence in a room heavy with grief.

EVALUATION:
1. Illustrations accomplished for this project must be presented to the teacher for grading.
2. A class critique should be managed in which the assignment illustrations are displayed and discussed according to their merit and effectiveness. In all

cases, determine whether the mood presented in each is appropriate to the illustration. Ask for considered opinions from the class as to what improvements might be made to give a particular picture greater impact and strength of idea.

3. A follow-up quiz which asks questions pertinent to this lesson would provide reinforcement of the learning experience.

MATERIALS AND RESOURCES:

1. Art supplies: paper, pencils, ink, paints, etc.
2. Appropriate slide transparencies, as available.
3. Film:
   Art and You, 10 min., Bailey Film Assoc., Santa Monica, Calif. 1958
4. Lovejoy's Career and Vocational School Guide
   Simon and Schuster, N.Y.
5. Butterick's Career Encyclopedia
6. *The Illustrator in America*, Walt Reed Reinhold 1966
7. *Techniques of Picture Making*, Henry Gasser, Rienhold 1962
8. *New Horizons in Color*, Faber Birren, N.Y. Reinhold 1955
9. *Color and Symmetry*, Authur Loeb, John Wiley 1971

CURRICULUM GUIDE

CLUSTER: Communication and Media

JOB FAMILY: Illustrator

SUBJECT AREA: Art

NAME OF COURSE: Graphics, Commercial Art

NAME OF UNIT: Introduction to the Airbrush

MAJOR IDEA: The airbrush is one of the most valuable tools of the Illustrator in that it can quickly produce graduated tones of color and make possible special effects not attainable with any other medium. The student who learns to use the airbrush well, opens the door to many illustration-related careers not otherwise possible without this particular skill.

Goal: Through the completion of this lesson, the student is expected to become aware of varied career possibilities stemming from the use of the air brush and, additionally, gain appreciation for the attention that is required for the maintenance and care of the delicate mechanism of the airbrush.

OBJECTIVES:

1. Student will learn how to maintain and care for the airbrush, and attain some skill in its use.
2. Student should gain greater career awareness, realizing airbrush utilization in two very popular areas - album covers, van painting.

CONTENT: Care and maintenance of the airbrush is shown through demonstration. Emphasis on good work habits is stressed. If the delicate and expensive instrument is damaged or not cleaned properly, it will not function well or will fail.

Note: Danger of compressed air and gas, expecially to the eyes is emphasized. Be sure to demonstrate that air or gas must be turned off at the bottle while hoses and instrument are being connected or disconnected.

ACTIVITIES:

1. Each student (particularly those who have never used the airbrush) is permitted under close supervision to "try his/her hand" with the airbrush. The students should show proper handling of the instrument, as demonstrated by the teacher.

2. After being given time to practice with the airbrush, each student should produce the best example of his/her work for grading and/or class discussion and critique. The result of the example must demonstrate the student's ability to produce a series of very evenly graduated tones of color. (i.e.: from dark to light, from high to low intensity, or change from one hue to another.)

3. Final phase of this lesson is accomplished thus: Fieldtrip: A lecture and demonstration during visit to an accomplished airbrush artist in a local van customizing shop. Opportunities and varieties of careers with airbrush should be emphasized.

EVALUATION:

1. Grading of each student project.
2. Quiz relating to care, handling and maintenance of the airbrush, especially as regards painting techniques.
3. Demonstration by student using the airbrush.

MATERIALS AND RESOURCES:

1. A field-trip to a local van customizing shop.
2. Currently popular record album covers brought in by the students and displayed within the classroom should provide additional inspiration for this lesson.
3. Appropriate and available slide transparencies.
4. Adequate number of airbrushes, associated equipment, paper, boards and surface materials.
5. Information and equipment from: Badger Air-Brush Co.
   9128 Belmont Ave, Franklin Park, Ill., 60131
6. Butterick's Career Encyclopedia
7. Careers in the Arts, Eliz. Mc Causland Day 1950
8. Badger's Hobby and Craft Guide to Air-brushing
   9128 W. Belmont Ave., Franklin Park, Ill. 60131
9. Airbrush equipment Thayer & Chandler, Inc.
   442 N. Wells, Chicago, Ill. 60610

CURRICULUM GUIDE

CLUSTER: Construction

JOB FAMILY: Interior Design, Draftsman

SUBJECT AREA: Art

NAME OF COURSE: Art I, Art II

NAME OF UNIT: Interior Development, using single and two-point perspective.

TIME ALLOWED: 5 class periods.

MAJOR IDEA: A greater appreciation for career possibilities should ensue from the study of this lesson, particularly with a view toward Interior Design of any living-being enclosure, fixed or mobile. In addition to career awareness, the student will learn some skill in the use of single-point and two-point perspective drawing.
Goal: The student will develop a drawing of a very special interior of original design.

OBJECTIVES: The student will demonstrate career-awareness of the field of Interior Design.
The student will display understanding and proficiency of skill in the use of perspective drawing by developing a drawing of an original interior design.

CONTENT: Appropriate films and transparency slides should be shown to the class upon introduction of this lesson. A field-trip in which unusual interiors are seen and a visit to a local architect or Interior Design Studio should be accomplished to generate student enthusiasm.

Introduction, or review of single and two-point perspective drawing should be established. Those students who are unfamiliar with proper use of the T-square and triangles should be so instructed.

ACTIVITIES: Teacher: The teacher should introduce the lesson with a thorough explanation of the Objectives and Content in order that the students will know what is expected of them.
.....It should be established by a practice session that all students within the class know the correct usage of the T-square and triangles. Make sure the students understand the importance of cleanliness of drawing tools, and neatness in drawing.

.....Particular emphasis should be stressed as regards beauty and function. Color coordination plus material combinations can create beauty, while proportion, comfort and traffic patterns all contribute mightily to function.

Student: The student is expected to pursue research by his own initiative, and to practice with the T-square and Triangles until confident and secure in their use, in addition to performing the classroom assignments of this lesson.
.....The student should be aware that it is his responsibility to collect information and knowledge in the form of notes which will be needed to write a summary essay which will complete the lesson.

EVALUATION:

1. Project drawings will be submitted for grading.
2. The class will be given a quiz pertaining to information gained during the study of this lesson.
3. Each student will submit an essay of acceptable quality that summarizes the complete experience of this lesson.
4. A professional Designer should be invited to the classroom to discuss the merits of the most successful drawings.

MATERIALS AND RESOURCES:

1. Art supplies: papers, inks, mechanical drawing tools (especially T-Squares and Triangles) as needed.
2. Slide transparencies, as appropriate and available.
3. Films:
   A is for Architecture 30 min. International Film Bureau, Chicago, Ill. 1959
   Discovering Perspective: 14 min. Bailey Film Associates 1962
   What do you mean by Design: 7 min. Fine Art, Inc. N.Y., N.Y. 1973
   Jobs in Drafting: 10 min Sterling Educational Films, N.Y., N.Y. 1970
4. Military-Civilian Occupational Source Book July 1975 - DOD 1304.12X
5. Occupational Outlook Handbook - U.S. Dept of Labor Bureau of Labor Statistics, 1978
6. Butterick's Career Encyclopedia
7. Decoration U.S.A., Jose Wilson N.Y. Macmillan 1965
8. The Doubleday Book of Interior Decorating - Doubleday 1965
9. Design: A Creative Approach; Sybil Emerson, Scranton, International Textbook Co. 1953

CURRICULUM GUIDE

CLUSTER: Manufacturing

JOB FAMILY: Package Designer

SUBJECT AREA: Art

NAME OF COURSE: Graphics, Commercial Art

NAME OF UNIT: Package Design

TIME ALLOWED: Two weeks

MAJOR IDEA: This lesson should instill within the student an appreciation for package design and its excellent potential for career possibilities.
Goal: The student will create a package design that is both functional and beautiful.

OBJECTIVES:
1. Design and build an acceptable package for a specific product or object.
2. Introduce the career of Package Design.

CONTENT: Study of package design will be accomplished, especially pertaining to beauty of style and function of the packaging enclosure. The student will design and build a package that reflects the positive advantage of this study. Further study will emphasize the potential for career pursuit within Package Design.

ACTIVITIES: Teacher: The teacher should begin the lesson with an introductory presentation of lecture, slide projections, and class discussion - all of which investigate the world of package design.
.....Explain and assign the project to be completed by each student.

Student: Student interest in this lesson will be generated by the first assignment: Bring to class the most unusual designed commercial package enclosure you can find. Be prepared to write a treatise on why you think it is (or is not) beautiful, and whether the function is good or bad.
.....Design and build a package that will hold and protect an egg from breaking when dropped from a six-foot height. The package must be neatly constructed of a minimum of materials to protect the egg, and to be feasible to commercially reproduce. Finally, the package must be as beautiful as the student can make it.
.....Write an essay, after having researched the subject

sufficiently, on the packaging industry stressing specific Companies, and opportunities for a career in packaging design.

.....Students will supply all materials, and the egg. (It may not be hard boiled!)

EVALUATION:

1. Packages will be submitted for grading. Grades will be determined by beauty as well as function. (A large portion of the function grade will be determined by whether or not the egg survives intact.)
2. Essays will be graded.

MATERIALS AND RESOURCES:

1. Commercially-designed packages collected by students.
2. Slide transparencies, as available and appropriate.
3. Films:
   What do you Mean by Design?: 7 min. Fine Art Inc., New York, N.Y. 1973
   Physical Enviornment: 11 min. McGraw Hill Films 1966
4. Butterick's Career Encyclopedia
5. *Teaching Design and Form*, Gunnar Sneum Reinhold 1965
6. *Discovering Design*, Marion Downer N.Y. Lothrop, Lee and Shepard Co. 1947
7. *Design; A Creative Approach*, Sybil Emerson Scranton, International Textbook Co. 1953

CURRICULUM GUIDE

CLUSTER: Communication and Media

JOB FAMILY: Printer

SUBJECT AREA: Art

NAME OF COURSE: Graphics, Commercial Art

NAME OF UNIT: Handbill or "Flyer" Reproduction

TIME ALLOWED: 5 class periods

MAJOR IDEA: Career awareness for information reproduction will be enhanced by learning how to print and diseminate a handbill. Goal: The student will create and reproduce a handbill of acceptable quality and study the proper means of economic and efficient distribution.

OBJECTIVES:

1. The student will learn many aspects of the printing and reproduction business.
2. The student will learn effective means of communication by distribution of the printed message.
3. The student will learn the importance of clarity of form in conveying a precise idea.

CONTENT: Study during this lesson will emphasize the historical significance of the handbill, or "flyer," its influence on the development of society in the past and in the present.

Aspects of message impact will be stressed, particularly as regards clarity of idea, readability and distribution.

Emphasis on career opportunities in reproduction will encourage the student to consider implications for the future.

ACTIVITIES: Teacher: The lesson should commence with a lecture and discussion supported by available audio-visual aids. The following information should be included: The historical significance of handbills (often referred to as "flyers") in the development of civilization, and their potential for influence on society currently.
.....Careful instruction must be given regarding the form of the flyer: Consideration for appropriate letter style, color and composition of the page is very important. Clarity of idea is emphasized.

.....Distribution means should be studied. Mailing, hand carrier, air drop or any other means should be considered for their situational appropriateness.
.....Demonstration of the printing machine should be accomplished by the teacher.
.....Various means of reproduction, including ditto machine, mimeograph, photo offset and others, should be shown.

Student: Students must demonstrate their understanding of printing machine operation before proceeding with the assignment.
.....The specific assignment is to produce a handbill of acceptable quality and reproductions of no less than fifteen in number. The message to be conveyed may announce a significant coming event or may register a particular complaint.
.....Students should distribute at least fifteen of the flyers to friends, relatives and acquaintances with instructions for them to be returned with written criticisms on the back.

EVALUATION:

1. One signed copy of the flyer will be presented by each student to the teacher for grading.
2. Class should be given a quiz regarding aspects of printing reproduction covered during project.
3. Class discussion should be held pertaining to the overall effectiveness of the lesson.

MATERIALS AND RESOURCES:

1. Papers, inks, as needed.
2. "Masterprinters" print press, available from Signpress, Galesburg, Ill. (or comparable print press)
3. Films:
   Learning to Set Type: 10 min. Bailey Film Assoc., Santa Monica, Calif. 1960.
   Putting a Job on a Platen Press: 10 min. Whitten, Inc., Los Angeles, Calif. 1960.
   Print Making-Four Artists, Four Media: 19 min., Bailey Film Assoc., Santa Monica, Calif. 1968.
4. Available and appropriate slide transparencies.
5. Lovejoy's Career and Vocational School Guide. Simon and Schuster, N.Y.
6. Butterick's Career Encyclopedia
7. Careers in the Arts, Eliz McCausland, Day 1950
8. Graphic Design Manual, Armin Hoffman Rienhold 1965

CURRICULUM GUIDE

CLUSTER: Communication and Media

JOB FAMILY: Signmaker

SUBJECT AREA: Art

NAME OF COURSE: Graphics, Art II, Commercial Art

NAME OF UNIT: Signmaking

TIME ALLOWED: 5 class periods

MAJOR IDEA: The class learns those elements necessary to create an effective sign.
Goal: The student will learn to produce a sign of acceptable quality that advertises an important local place or function. (Ex: "Art Room", "Janitoral Office", "Candy Sale", etc.)

OBJECTIVES:

1. Student will learn the technical aspects of content (appropriate letter style, color), composition and layout required to make a sign that presents an idea in a most effective manner.
2. Students will learn about the career of signmaking.

CONTENT: The lesson will include lectures and demonstrations that stress the importance of practice (particularly in the proper handling of a brush, using correct and efficient strokes), good and appropriate letter style and color applicability.

The tangible product of this lesson will be a sign produced by the student that must be judged effective according to the use of appropriate letter style, colors, and size application.

Career awareness should be enhanced for the student due to the interest generated through participation in this project, especially upon seeing a successful local signmaker and some of the useful techniques employed by him.

ACTIVITIES: Teacher: The lesson should begin with a slide presentation showing various and/or unusual examples of signs. Special importance should be placed upon appropriate letter styles and good use of color. "Optical" spacing between words and letters, rather than "measured" spacing, should be carefully explained. "Visibility" factors governed by function (emergency warning, informational, etc.) should be noted.

Student: The specific assignment of this lesson is to produce a sign of acceptable quality, according to the previously-established criteria of letter style, color and size.

EVALUATION:

1. Signs will be presented for grading by the teacher.
2. Class discussion should take place pertaining to quality and overall effectiveness of each sign. Note: Those signs adjudged to be successful or outstanding should be displayed "in place" throughout the school building, along with a notice card giving full explanation and credit for each particular sign.

MATERIALS AND RESOURCES:

1. A field trip to a local sign painting shop should be arranged.
2. Papers, inks, paints and surface materials (board, metal, plastics, etc.) *
3. Slide transparencies that are appropriate and available.
4. Lovejoy's Career and Vocational School Guide Simon and Schuster, N.Y.
5. Butterick's Career Encyclopedia
6. Careers in the Arts, Eliz McCausland Day 1950
7. God's Own Junkyard, Peter Blake Holt 1964
8. Sign, Symbol and Script, Hans Jensen Putnam 1969

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*An appropriate number of flat, good quality lettering brushes should be obtained.

CURRICULUM GUIDE

CLUSTER: Fine Arts and Humanities

JOB FAMILY: Choreographer

SBUJECT AREA: English

NAME OF COURSE: All levels of English I

NAME OF UNIT: Drama

TIME ALLOWED: ten - fifteen minutes

MAJOR IDEA: Identify the occupation of a choreographer and his job requirements and responsibilities.

OBJECTIVES: Learn the meaning of the terms choreography and choreographer and how they apply to the musical WEST SIDE STORY.

Identify the role and contribution the choreographer makes in the production of a musical play.

CONTENT: The term choreography will be found on the title page of play WEST SIDE STORY, and students will learn that Jeorome Robbins choreographed the musical. Students should be able to identify which scenes he had to block and which scenes he had to create dance movements. Information should follow on the career of a choreographer and his role in the production of a musical.

ACTIVITIES: Having turned to the title page of WEST SIDE STORY in the text, students identify the author, composer, lyricist, and choreographer for the musical. Attention is paid to choreographer by putting the term and Jerome Robbins' name on the chalk board. The teacher or a student explains that a choreorgrapher is responsible for the dance numbers in a musical. However, in WEST SIDE STORY fight scenes also occur which had to be blocked. Blocking and the importance of timing especially in a fight scene are discussed.

Homework: After reading Act I, students must identify which scenes Jerome Robbins choreographed for dance and which scenes he choreographed for fighting. Encourage students to listen to the recording of the musical for a fuller understanding of the score and responsibilities of the choreographer.

Alternative Assignment for some students: Find out information about the life and career of Jerome Robbins and report it to the class. Be certain to include other plays he has choreographed.

Alternative Assignment: Have a student or students investigate the career of a choreographer by using references in the library, career facilities, or interview a dance instructor and report the findings to the class.

EVALUATION:

1. A choreographer might find employment in all but one of these places:

    a) production staff of a Broadway musical
    b) high school drama club production of OKLAHOMA
    c) school of dance in the community
    d) heart attack emergency unit at hospital

2. Olga has studied ballet from age four and wants to become a professional dancer. She realizes, however, when she gets older that she will not be physically able to perform, and yet she wants to remain active in the dance field. She should consider a secondary career as a ...

    a) costume mistress.
    b) mother.
    c) dance instructor.
    d) manufacturer of tights.

3. A choreographer develops dance routines set to music. Nevertheless, as in the case of Jerome Robbins in WEST SIDE STORY, a choreographer might also develop dance movements for ...

    a) fight scenes.
    b) stage hands.
    c) the orchestra.
    d) blackout scenes.

4. Which statement is NOT TRUE about the occupation CHOREOGRAPHER.

    a) one needs to understand dance and music.
    b) one needs to be able to tolerate long hours of rehearsal practice.
    c) one needs to enjoy working and training performers.
    d) one needs a college degree for employment.

RESOURCES: A. Lesson Resources:

ROMEO AND JULIET/WEST SIDE STORY, Laurel Leaf Library, Dell Publishing Co., New York, 1965.

A TEACHER'S GUIDE TO MODERN DRAMA, compiled by Stewart H. Benedict, Dell Pub. Co., New York, 1967.

WEST SIDE STORY, the original sound track record, Columbia Records.

B. Career Resources:

DANCING FOR A LIVING, Hilary Cartwright

MASSINE ON CHOREOGRAPHY, Leonide Massine

THE DANCE ENCYCLOPEDIA, A. Chujoy and P.W. Manchester, Simon & Schuster, Inc., 630 Fifth Ave., New York, N.Y.

YOUNG DANCER'S CAREER BOOK, Regina J. Woody, E.P. Dutton and Co., 201 Park Ave., New York, N.Y. 10003.

TO A YOUNG DANCER, Agnes de Mille, Little Brown, Pub., 34 Beacon St., Boston, Mass. 02106.

OPPORTUNITIES IN A DANCING CAREER, Vocational Guidance manuals, 235 East 45th St., N.Y., N.Y. 10017.

CURRICULUM GUIDE

CLUSTER: Public Service

JOB FAMILY: Clergy

SUBJECT AREA: English

NAME OF COURSE: Regular and Basic English I

NAME OF UNIT: Speech

TIME ALLOWED: Two class periods

MAJOR IDEA: See and realize that men and women can do and take jobs in occupations fomerly restricted by sex labels or stereotypes.

OBJECTIVE: Speak in front of the class publicly, confidently, and carefully in a given situation.

Role-play an occupation formerly sex stereotyped.

Find and speak about the skills, job requirements, and activities in this occupation.

CONTENT: After seeing the film Women at Work -- Change, Choice, Challenge, the students should explain the main idea of the presentation, namely reverse job roles based on sex. The game "What's My Line?" will be played with specified students taking on a job not typically held by a person of that gender. The students in the class, in small groups, will try to discover the occupation held by the "Guest".

ACTIVITY: FIRST CLASS PERIOD: Show the film WOMEN at Work -- Change Challenge and discuss women as locomotive engineers, oil workers, etc., as depicted in the film.

"What's My Line?" is explained. Depending on the size of the class, break into groups of five-seven students. Each group designates a "guest" and finds an occupation for that person based on one opposite his/her sex. The group finds the information needed in the occupation through general career resources in the library or career center as well as specific sources for the field selected. The "guest" should write them down and be able to speak about where, when, how he/she works.

Each group also designates a master of ceremonies who will preside over the performances of the guests and panels.

SECOND CLASS PERIOD: The class will present four or five performances of "What's My Line?". The panel can be out of room momentarily while the "guest" signs in or the entire class can be uncertain of the occupation being presented. Panelists should ask questions regarding the occupational requirements of the "guest - female rabbi" and try to guess the identity of the role. Once the "rabbi" has been identified, the student tells the entire class the information he/she discovered about the job.

EVALUATION:

1. Beatrice is considering a career as a minister and has discussed the occupation with the pastor of her church. She went to the library to find more information but was unsuccessful because she looked under the topic CLERGY. Beatrice should have looked under the topic ...

   a) Churches.
   b) Nuns.
   c) Rabbi.
   d) Religious careers.

2. Which fact is NOT TRUE regarding a career as a minister?

   a) College education with a major in theology is necessary.
   b) One should have a deep conviction for the religious and spiritual needs of mankind.
   c) One should have leadership qualities.
   d) Only men may enter the clergy.

3. A college which specializes in the study of theology and prepares students to enter the field of the ministry is called ...

   a) cemetery.
   b) seminary.
   c) rectory.
   d) synagogue.

RESOURCES: A. Lesson Resources:

Women at Work - Change, Choice, Challenge film, 19 min. MP-2-12605, available through regional county film libraries.

WARRINER'S ENGLISH GRAMMAR AND COMPOSITION, Third Course, Harcourt, Brace, Jovanovich, Inc., N.Y. 1977.

"Communication Skills: Learning to Listen and Express Yourself," slideshows part I and II, The Center for the Humanities, Inc., Two Holland Ave., White Plains, New York, 10603, 1975.

B. Career Resources:

I CAN BE ANYTHING: Careers and Colleges for Young Women, Joyce Slayton Mitchell, Bantam, New York 1978.

FREE TO CHOOSE: Careers and Colleges for Young Men, Joyce Slayton Mitchell, Dell.

ENCYCLOPEDIA OF CAREERS AND VOCATIONAL GUIDANCE, Volumes I and II, William E. Hopke, editor, Doubleday and Company, Garden City, N.Y. 1977.

OCCUPATIONAL OUTLOOK HANDBOOK, 1978-79 EDITION, U.S. Department of Labor Bureau of Statistics, Washington, D.C. 20212.

SUBJECT: ENGLISH, OBJECT: CAREER OPPORTUNITIES, FOCUS: RABBI, Time Share, Houghton Mifflin Co., Boston, 1978.

RABBIS, Chronical Guidance Publications, Inc., 1976.

B'nai B'rith Career and Counseling Services,
1640 Rhode Island Ave., NW, Washington, D.C. 20036.

Jewish Statistical Bureau, 1182 Broadway, New York,
N.Y. 10007.

Hebrew Union College and Jewish Institute of
Religion, 40 W. 68th Street, New York, N.Y. 10023.

A rabbi (male/female) from a local synagogue can be a guest speaker or be interviewed.

CURRICULUM GUIDE

CLUSTER: Communications and Media

JOB FAMILY: Commerical Artist

SUBJECT AREA: English

NAME OF COURSE: English I

NAME OF UNIT: Literature

TIME ALLOWED: One class period for presentation Assignment: 1 hour

MAJOR IDEA: To perform the skills needed of a graphic artist as he takes the printed work and transforms it into pictures with captions in the form of a comic strip.

OBJECTIVES: Understand the skills needed by a graphic artist/cartoonist.

Utilize the drawing and writing skills of the artist in transforming a chapter from a novel into a comic strip.

Evaluate the material adaptable in the assignment.

Evaluate the product. Is it better than the original?

Is something lost in the adaptation?

CONTENT: Many novels are similar to the "Soap Operas" seen on TV. The comic strips contain in very abbreviated form a similar treatment of characterization, plot, and suspense. As a graphic artist or cartoonist, a person must apply reading, writing, and drawing skills to adapt an original work to a comic strip. Students apply these skills in connection with a literature assignment.

ACTIVITIES: Show the filmstrips "The Comics: An Art Form" and "The Comics: A Literary Form" (both 18 minutes) and discuss and learn the terminology by looking at the comic strip section of a daily newspaper. After discussing the duties of a grapic artist and the skills needed in the job, students are assigned to transform a chapter from GREAT EXPECTATIONS into a comic strip with a required or suggested number of frames. Students are given chapters which will and will not adapt well. Setting, time, characterization, suspense, local color, as well as plot must be illustrated through the drawings and dialogue in balloons.

EVALUATION:

1. The definition which most clearly explains what a COMMERCIAL ARTIST might do is ...

   a) designs the artwork for publications, films, textiles, greeting cards, and industrial products.
   b) services professional house painters with supplies.
   c) acts in radio and television commercials.
   d) sells reprints of famous paintings and photographs in retail stores located in malls.

2. There are numerous specialized jobs in the broad occupational field of commercial art. One which demands ability and skills in both drawing and writing is ...

   a) fashion illustrator.
   b) painter.
   c) cartoonist.
   d) print maker.

3. Free-lance is a term which means ...

   a) A knight without a lady waiting for him back at the castle.
   b) One who pursues a profession (such as designing packages for products) without long-term contractual commitments to any one employer.
   c) A modern artist who uses "disco themes" and "flashy colors" in his/her work.
   d) One who has just completed apprenticeship and is now seeking employment.

RESOURCES:

A. Lesson resources:

ADVENTURES IN READING (Mercury Edition) Harcourt, Brace and Co.

GREAT EXPECTATIONS, Charles Dickens abridged & introduction notes by Blanche J. Thompson, Harcourt, Brace and World, Inc.

"Meet Mr. Dickens," two filmstrips Thomas S. Klise Co., P.O. Box 3418, Peoria, Ill. 61614.

B. Career Resources:

CAREER OPPORTUNITIES AS A COMMERCIAL ARTIST, Institute for Research, Chicago, Ill. Research No. 14, 1975.

COMMERCIAL ART TECHNIQUES R. Murello.

FILL'S GUIDE TO COMMERCIAL ART, Ray P. Nelson & Byron Ferris.

VISUAL PERSUASION: THE EFFECTS OF PICTURES ON THE SUBCONSCIOUS, S. Baker.

YOUR FUTURE IN ART AND DESIGN, Arco-Rosen Career Series.

"The Comics: A Cultural History" - filmstrips "An Art Form" and "A Literary Form," Educational Audio Visual Inc., Pleasantville, N.Y. 10570.

THE WORLD ENCYCLOPEDIA OF COMICS, edited by Maurice Horn, Chelsea House Publishers, New York, 1976.

Magazine Cartoonists Guild, 202 W. 78th St., N.Y.,N.Y.

Society of Illustrators, 128 East 63rd St., New York, N.Y.

National Art Education Assoc. of the National Education Association, 1916 Association Drive, Reston, VA 20091.

National Assoc. of Schools of Art, 50 Astor Place, New York, N.Y. 10003.

An art teacher in the district.

A cartoonist or commercial artist with an area newspaper or publishing house.

CURRICULUM GUIDE

CLUSTER: Public Service

JOB FAMILY: Diplomat

SUBJECT AREA: English

NAME OF COURSE: All English I levels

NAME OF UNIT: The Research Paper

TIME ALLOWED: One class period

MAJOR IDEA: To identify a communication skill necessary for a diplomat.

OBJECTIVES: Understand the need for foreign language skills to fulfill the requirements of a diplomat.

Identify the foreign languages which will be useful in the future for a U.S. Foreign Service employee.

Develop and use the skill of transferring information from a magazine article on to note cards.

CONTENT: This lesson may be applicable to any occupation. After finding a brief magazine/newspaper article about an occupation, develop an exercise in which the student must read the article, paraphrase the information and put it on note cards. A bibliography card which corresponds to the magazine/newspaper article must also be available so that the student learns to indicate where information was found when researching a subject for a research paper. The teacher uses the information related to the occupation when reviewing the exercise. Discussion would follow on the occupation.

ACTIVITIES: Students are given a ditto sheet containing a bibliography card, magazine article and directions for an exercise. An additional ditto sheet containing four blank 3 x 5 cards will be used to write notes from the article.

The teacher instructs the students to read the article and find the main idea. In this case: The U.S. may have serious diplomatic problems because the diplomats lack the necessary foreign language knowledge for contemporary diplomatic relationships.

Paraphrasing is explained. Students find four notes on the topic and put them in their own words on the note cards. Slugs and source card information must also be indicated.

Instruction can also be given on taking and recording direct quotes and putting them on the note cards.

The teacher shows the class a transparency containing the four note cards with information. The foreign language skills and need for Russian, Japanese, and Chinese language study is discussed. Additional Public Service occupations requiring a foreign language might be suggested by the students.

EVALUATION:

1. As a high school junior Amanada is interested in becoming a career diplomat. If she pursues this occupation, she will have to...

   a) enlist in the Army.
   b) get a college and master's degree in foreign service.
   c) learn how to cash traveller's checks.
   d) get used to jet lag.

2. Diplomats in recent years have been reopening communication channels and business relations with which country listed below in particular?

   a) England
   b) Egypt
   c) Mexico
   d) China

3. Diplomats work for ...

   a) the federal government.
   b) our state government.
   c) your local municipalities.
   d) the CIA.

4. In selecting courses for his senior year and knowing that he desires to enter the foreign service, Maxwell does not need to study ...

   a) English.
   b) History.
   c) Spanish.
   d) Advanced Woodshop.

RESOURCES: A. Lesson resources:

Bonds, Ellen, "U.S. Neglects Languages," NJEA Review Volume 52, February 1979, p. 4.

FUNDAMENTALS OF THE RESEARCH PAPER, William Leahy, Kenneth Publishing Co. Palos Heights, Ill. 60463 1964.

WRITING THE RESEARCH PAPER AND TERM PAPER, Travis L. Hauser and Lee Learner Gray, Dell Pub. Co., N.Y. 1964.

B. Career Resources:

CAREER OPPORTUNITIES IN THE INTERNATIONAL FIELD, Garrett Park Press, Garrett Park, Md. 20766.

CAREERS IN WORLD AFFAIRS: AT HOME AND ABROAD compiled by Foreign Policy Assoc., World Affairs Center, N.Y. Doubleday and Co., Inc.

CAREERS IN THE U.S. FOREIGN SERVICE, Research No. 18, The Institute for Research, Chicago, Ill. 1976.

DIPLOMACY FOR THE 70's, Department of State Pub. 8551, Dept. of Foreign Service Series, U.S. Government Printing Office, Washington, D.C. 20401.

CAREERS IN FOREIGN SERVICE OF THE U.S. State Dept. Pub. 7924, Washington, D.C. 20520.

THE DIPLOMAT'S WIFE, Richard Fyfe Boyce, Harper and Brothers, New York, 1956.

GUIDE TO CAREERS IN INTERNATIONAL SERVICE, School of International Service, The American University, Washington, D.C.

"The Diplomat and the Enigma," Llewellyn E. Thompson in ADVENTURES IN PUBLIC SERVICE, Delia and Ferdinand Kuhn, editors. Vanguard Press, Inc., N.Y. 1963.

This is the United Nations - film, MP-2-11527 (15 min.) available through regional libraries.

Visit the embassy of a foreign country in a metropolitan area.

Visit the United Nations.

Arrange an interview with a consul at an embassy.

CURRICULUM GUIDE

CLUSTER: Communications and Media

JOB FAMILY: Editor

SUBJECT AREA: English

NAME OF COURSE: Accelerated English I

NAME OF UNIT: Poetry

TIME ALLOWED: Presentation - 20 minutes: Project - three weeks

MAJOR IDEA: To demonstrate and perform the job of an editor in a publishing company.

OBJECTIVES: Understand the responsibilities of an editor.

Perform some of the tasks involved in organizing an anthology of poems for publication.

Read poems looking for composition, style and theme.

CONTENT: Near the conclusion of a unit on poetry, introduce the career of an editor in a publishing company and discuss responsibilities. Have students become editors of an anthology of poems of various styles but based on one theme - love, youth, the seasons, sports, the theatre etc.

ACTIVITY: Read in class James Thurber's short play "Take Her Up Tenderly" from A Thurber Carnival which depicts four editors organizing an anthology of poem. (Ten minutes) After discussing the duties of an editor, explain the reading and writing assignment. Students must select a theme and find eight - twelve poems illustrating it. A variety of styles must be included as well as a preface to the book and introductory thoughts on each poems. Drawings or pictures may be included to enhance the presentation. Students must decide on the title, cost, copyright, publishing company, and audience to which the anthology might appeal. Suitable pages with this information must appear in the book.

FOLLOW-UP: John Trebbel's book OPPORTUNITIES IN PUBLISHING CAREERS includes a short chapter on Personal Qualifications for editors in the literary field. Duplicate or read the section to the students. A discussion might follow on the qualifications or experiences while preparing the Poetry Anthology.

EVALUATION:

1. The position of an editor is characteristically known as a ...

   a) white collar position.
   b) blue collar position.
   c) dirty collar position.
   d) undercover position.

2. In which one of the following areas would a person with experience as an editor be least likely to find employment?

   a) magazine publisher
   b) television station's news department
   c) book publishing corporation
   d) real estate agency

3. Mr. Grant hopes to become the Managing Editor of a big city newspaper. Since high school he has been employed in the newspaper field. His first job was probably ...

   a) reporter.
   b) paperboy.
   c) sports' editor.
   d) copy reader.

4. Which one of the following is not a skill or personal characteristic necessary for a successful editor?

   a) sense of ethics and integrity
   b) ability to work smoothly in guiding and criticizing others
   c) knowledge of which kind of asprin to take for headaches
   d) instincts about what people want and need to read

RESOURCES:

1. Holland, Allyne S., and Holland, Robert G., The Student Journalist and The Literary Magazine, Richards Rosen Press, Inc., New York, 1970.

2. Hopke, William, E. ed., "Editor," The Encyclopedia of Careers and Vocational Guidance, J.G. Ferguson Publishing Company, Chicago, 1978 Volumes I & II.

3. Tebbel, John, Opportunities in Publishing Careers, Vocational Guidance Manuals, Inc. Louisville, Kentucky, 1975.

4. VICS

CURRICULUM GUIDE

CLUSTER: Communications and Media

JOB FAMILY: Lexicographer Linguist

SUBJECT AREA: English

NAME OF COURSE: Accelerated English I

NAME OF UNIT: Literature - Science Fiction Brave New World

TIME ALLOWED: Writing assignment - three to five days

MAJOR IDEA: To recognize the job of a Lexicographer and demonstrate an aspect of his job using vocabulary of the future.

OBJECTIVES: Students will learn about a lexicographer/linguist who prepare texts of our language.

Students will perform the skills needed by a lexicographer in making a vocabulary lesson on words of the future from science fiction novels.

CONTENT: By the conclusion of the lessons on BRAVE NEW WORLD, students will have learned several fiction words created by the authors of these science fiction novels. Students should realize that words such as "clone" are already used in our language but may not appear in dictionaries of vocabulary books yet. Explaining the functions of lexicographers and linguists, the teacher indicates that language is always in the state of development and new publications will contain these words.

ACTIVITIES: Put several sci-fi words from any novel on the board and ask students to explain their meanings, parts of speech, related forms, etc.

Put the words LEXICOGRAPHER and LINGUIST on the board and explain their meanings and the duties performed in both occupations.

ASSIGNMENT: Select ten sci-fi words from the novel read in this unit and prepare a vocabulary lesson similar to those in your vocabulary text. Exercises matching words with meanings, synonyms, antonyms should be included as well as sentence completions.
You may create your own words for the lesson as long as at least four words come from the novel.

EVALUATION:

1. Larry works in the lexicography department of McGraw Hill, a publishing company in New York. As a lexicographer, he is responsible for ...

   a) editing and making dictionaries
   b) binding books
   c) proof-reading textbooks
   d) listening to complaints about books from unhappy readers

2. Marsha is very interested in becoming a lexicographer. She will need a strong educational background in ...

   a) English and foreign languages
   b) math and science
   c) physical education and health
   c) typing and shorthand

3. While Maxwell has the aptitude and desire to become a lexicographer, he must consider which of the following facts before he puts a great deal of time and money into study in the pursuit of this occupation?

   a) Most lexicographers are women.
   b) There is not a great demand in the job market for lexicographers.
   c) Lexicographers are considered "weird" by many people.
   d) He will only work at night although the pay will be good.

RESOURCES:

A. Lesson Resources:

BRAVE NEW WORLD, Aldous Huxley, Perennial Classic, Harper and Row Publisher, Inc., New York, 1932.

BRAVE NEW WORLD REVISITED, Aldous Huxley, Perennial Library, Harper and Row Publisher, New York, 1958.

FUTURE SHOCK, Alvin Toffler, Bantam, New York, 1970.

"The Future-Worlds to Come," four filmstrips, Scholastic Literature Filmstrips through Scholastic magazine, Inc., 904 Sylvan Ave., Englewood Cliffs, N.J. 07632, 1975.

La Jete, film, (29 min) by Chris Marker, available through regional county film libraries.

B. Career Resources:

Subject English: Object Career Occupations: Topic
LEXICOGRAPHER, Time Share, Houghton Mifflin Co., Boston, 1975.

CULTURAL ANTHROPOLOGY, Carol R. Enber, Melvin Enber, Prentice Hall Inc., Englewood Cliffs, N.J. 1977.

INQUIRY INTO ANTHROPOLOGY, H. Leon Abrams, Jr., Globe Book Co., Inc., 175 Fifth Ave., New York, 10010, 1976.

Department of Linquistics, Georgetown University, Washington, D.C. 20009.

Center for Applied Linguistics, 1611 North Kent Street, Arlington, Va., 22209.

The Smithsonian Institute, Washington, D.C. 20560.

American Anthropological Association (info on Liguistic Anthropologist) 1703 New Hampshire Avenue, N.W., Washington, D.C. 20009.

Speaker from a local Berlitz School for the teaching of foreign languages.

A foreign language teacher may be a speaker.

CURRICULUM GUIDE

CLUSTER:	Public Service
JOB FAMILY:	Librarian
SUBJECT AREA:	English
NAME OF COURSE:	English I and Accelerated English I
NAME OF UNIT:	Library Orientation
TIME ALLOWED:	Ten minutes

MAJOR IDEA: To demonstrate the job of a school's LIBRARIAN

OBJECTIVES: Understand the qualifications and responsibilities of a school's LIBRARIAN.

Discover additional places where a LIBRARIAN may work.

CONTENT: During a unit on resource books and the organization of the library, the student finds out about the school's librarian. An assignment is given to interview the librarian and ask questions about his/her education, duties, and "hints" on how a freshman might use the school's library productively. (10-15 minute interview) (usually assigned to two-three students)

ACTIVITY: The students role-play the interview with the Librarian, one taking the role of the interviewer and the other the Librarian. The information gathered is presented to the entire class.

The teacher follows-up the presentation by going over the other places a librarian might work, such as in corporations, hospitals, the medical and legal fields, and the public library.

The teacher tells the students that Drexel University in Philadelphia, Pa., is one of the outstanding Universities a student might go to if interested in pursuing a career in library science.

EVALUATION:

1. In order to become a librarian, a person must:

   a) get all A's in English and wear thick glasses.
   b) be able to read and type fast.
   c) have a BA or BS degree and go to graduate school to study library science.
   d) be able to fix a photocopy machine.

2. Which fact is NOT TRUE about employment in the field of library science?

   a) only women can be librarians.
   b) some librarians specialize in the field of law or medicine.
   c) a public librarian works in the community library.
   d) film librarians catalog and distribute movies.

3. Probably to be content and successful as a librarian, a person must enjoy working with ...

   a) microfilm.
   b) people of all ages.
   c) reference books.
   d) a stamp pad and calendar.

4. Marian, a freshman in high school, enjoys reading and doing research for school projects. She thinks she might like to become a librarian. A good way for her to find out if she would really like employment in this field would be for her to ...

   a) volunteer to help check out books in the school library.
   b) read to children during the summer in the local library vacation reading program.
   c) talk to a librarian in the public library in her home town.
   d) all of these things.

RESOURCES:

1. Hopke, William E. ed., "Librarians", The Encyclopedia of Careers and Vocational Guidance, J. G. Ferguson Publishing Company, Chicago, 1978 Volumes I and II.
2. Sullivan, Peggy, Opportunities in Library and Information Science, Vocational Guidance Manuals, Louisville, Kentucky, 1977
3. Your school professional library staff.
4. Your home town public library staff.
5. American Library Association, 50 East Huron St., Chicago, Ill., 60611
6. Special Libraries Association, 235 Park Avenue, South, New York, N.Y. 10003
7. VICS

EDUCATION PROGRAMS IN LIBRARY SCIENCE: See Chronicle

a.) Catholic University of America
Graduate Department of Library Science
Washington, D.C. 20064

b.) Columbia University
School of Library Service
New York, N.Y. 10027

c.) Drexel University
Graduate School of Library Science
Philadelphia, Pa. 19104

d.) University of Maryland
College of Library and Information Services
College Park, Md. 20742

e.) Rutgers University
Graduate School of Library Service
New Brunswick, N.J. 08903

RESOURCES: A. Lesson resources:

ENGLISH GRAMMAR AND COMPOSITION (Third Course) John E. Warriner, Mary E. Whitten, Francis Griffith, Harcourt Brace Jovanovich New York, 1977 - chapter 25 "The Library"

RESEARCH AND THE LIBRARY Alan L. Whipple, Independent School Press, Wellesley Hills, Massachusetts, 1974

HOW TO FIND WHAT YOU WANT IN THE LIBRARY, Charlotte Gorden, Barron's Educational Series, Inc. Woodbury, New York, 1978

Conference with the school librarian

Interview with a public library librarian in the area

B. Career Resources:

INTRODUCTION TO LIBRARIANSHIP (second ed.) Jean Key Gates New York: McGraw Hill 1976

LIBRARIAN - Arco Civil Service and Test Preparation Series Arco-Rosen publisher

YOUR FUTURE IN LIBRARY CAREERS' Arco - Rowen Career Series

OPPORTUNITIES IN LIBRARY AND INFORMATION SCIENCE, Peggy Sullivan Vocational Guidance Manuals, Louisville, Kentucky 1977

American Library Association, 50 East Huron Street,
Chicago, Ill 60611

Special Libraries Association, 235 Park Avenue S.,
N.Y., 10003

The New Librarians film - MP 2-12010 (15 min.) available through regional film libraries.

Schools offering degrees in library science in the area, such as:

1) Catholic University of America, Graduate Dept. of Library Science, Washington, D.C. 20064

2) Columbia University School of Library Science, New York, N.Y. 10027

3) Drexel University, Graduate School of Library Science, Philadelphia, Pa. 19104

4.) Rutgers University, Graduate School of
Library Service, New Brunswick, N.J. 08903

Visit a local university library

CURRICULUM GUIDE

CLUSTER: Communications and Media

JOB FAMILY: Photo Journalism

SUBJECT AREA: English

NAME OF COURSE: English I

NAME OF UNIT: Literature: Historical Fiction-APRIL MORNING by Howard Fast

TIME ALLOWED: 40 minutes and homework assignment

MAJOR IDEA: To demonstrate the job of a PHOTOJOURNALIST

OBJECTIVES: Understand the responsibilities, dangers, and achievements of a photojournalist recording a war scene.

Write a newspaper article from the point of view of a photojournalist who was present at the Battle of Lexington April 19, 1775

Draw a picture(s) - (Photograph) demonstrating the action during the battle.

Understand and demonstrate the use of the word - ANACHRONISM

CONTENT: Students are introduced to the term Photojournalist and the general duties in the occupation. The filmstrip "The Uncertain Day: A War Photographer's Journal" is shown (20 minutes). The filmstrip traces part of the life of photographer Don McCullin who wrote about and photographed the war in Cyprus, Biafra, Cambodia, and Viet Nam.

ACTIVITY: After viewing the filmstrip, students are assigned to write an article reporting on the massacre during the BATTLE OF LEXINGTON from the point of view of a photojournalist present at the time. The word anachronism and its application in the assignment must be explained. The photojournalist is sending his article to the HADDON GAZETTE or the LONDON TIMES. The report must tell who, what, when, where, why, and how the battle occurred. Pictures (photographs) must accompany the report.

ALTERNATIVE ASSIGNMENTS: Encourage some students to write from the point of view of the British using derogatory adjectives to describe the Patriots.

Have an interview with a participant in the battle. This may include personal comments which must be recorded in quotes.

Interview a woman who did not participate in the battle but lost a husband, son.

Prepare a photo essay depicting the battle scene. Captions would explain who, what, when, where, how, and why the battle took place.

EVALUATION:

1. Woody is a superb writer and has been editor of her high school newspaper. Her hobby is photography, at which she is also good. In college she hopes to combine these interests and take more advanced training in journalism. An appropriate career for her to investigate would be ...

   a) newspaper editor.
   b) wedding photographer.
   c) photojournalist
   d) English teacher.

2. When discussing the occupation of photojournalist with her counselor, Cecile was surprised to learn of the dangers involved. Quite often photojournalists are assigned to photograph and write about ...

   a) presidential campaigns.
   b) Board of Education meetings.
   c) automobile accidents
   d) battles during wars

3. Experience is usually a prerequisite for most positions. A high school student interested in becoming a photojournalist could begin acquiring a portfolio of examples of work and experience in the field of volunteering to work on ...

   a) the school's yearbook
   b) the school's discipline committee
   c) the school's marching band.
   d) the school's wrestling team.

RESOURCES:

1. Hopke, William E., "Photographers," The Encyclopedia of Careers and Vocational Guidance, J.G. Ferguson Publishing Company, Chicago, 1978 Volumes I & II.

2. "Photographer-Journalist," Careers, The Institute for Research, Chicago, 1977.

3. Tebbel, John, Opportunities in Journalism, Vocational Guidance Manuals, Louisville, Kentucky, 1977.

4. "The Uncertain Day: A War Photographer's Journal - Don McCullin," Images of Man, Scholastic Magazine, Inc., and the International Fund for Concerned Photography, 1972.

A. Lesson resources:

APRIL MORNING, Howard Fast, Bantam Pathfinder Editions, Bantam Books, Inc., New York, 1961.

ENCYCLOPEDIA OF AMERICAN HISTORY, Richard B. Morris, ed. Harper and Brothers, publishers, New York, 1961.

"Images of Man" (four filmstrips on the work and lives of four photo journalists), Scholastic Magazine, Inc., 904 Sylvan Avenue, Englewood Cliffs, N.J. 07632, 1973.

A HISTORY OF THE UNITED STATES, Howard R. Anderson, general editor, Houghton Mifflin Co., Boston, 1968.

B. Career resources:

A LIFE IN PHOTOGRAPHY published in collaboration with the Museum of Modern Art, Doubleday.

PRESS PHOTOGRAPHY: REPORTING WITH A CAMERA, Robert B. Rhode and Floyd H. McCall, Macmillan publisher.

YOUR CAREER IN COMMUNICATIONS, Research No. 19, The Institute for Research, Chicago, Ill. 1977.

YOUR FUTURE IN PHOTOGRAPHY, Arco-Rosen Career Series.

Professional Photographers of America, 1090 Executive Way, Des Plaines, Ill. 60018.

Photographic Art and Science Foundation, 11 Stratford Road, Des Plaines, Ill. 60016.

Have a photographer from a local newspaper speak on recording news in photos.

Visit a photographer's studio; the photographic lab of a newspaper.

"Photography: A History," filmstrips, Educational Dimensions Crop., Box 488, Great Neck, N.Y. 11022, 1971.

CURRICULUM GUIDE

CLUSTER: Communication and Media

JOB FAMILY: Television News Reporter

SUBJECT AREA: English

NAME OF COURSE: English I

NAME OF UNIT: Literature - JOSHUA SON OF NONE

TIME ALLOWED: One class period

MAJOR IDEA: To recognize the duties and responsibilities of a news reporter covering an event.

OBJECTIVES: Read from the point of view of a reporter what happened in Dallas the day John F. Kennedy was assassinated and understand the steps followed in covering a story and getting the information back to station.

Recognize why Dan Rather could have been fired for his coverage of Kennedy's assassination and the responsibilities a reporter has to the public.

Suppliment the facts given about the Kennedy assassination in the first chapter of JOSHUA SON OF NONE by Nancy Freedman.

CONTENT: Students are familiar with Dan Rather from "60 Minutes". He might not be as well known today if Kennedy had not been assassinated in Dallas because Rather was the first reporter to break the news to New York stations and had accurately verified the facts before releasing the information. In his novel, THE CAMERA NEVER BLINKS, Rather tells about going to Dallas for the coverage of Kennedy's visit, hearing the shots, and reporting the killing to New York. This should be read after students have read the first chapter of JOSHUA SON OF NONE in which they have read some of the same facts but from the point of view of a doctor attending Kennedy.

ACTIVITY: Give the students reprints of chapter five of THE CAMERA NEVER BLINKS found in Scholastic Voice "The Biggest Story of the Century and How I Nearly Blew It." Because there is good excitement in the chapter, read the material aloud in class. The teacher may have to stop occasionally to fill the class in on additional facts related to why Kennedy was in Dallas and what was going on in the United States before and after the news of the assassination.

Discussion will follow on how Rather reported the information he got and the attempts he made to verify the facts before sending the information to CBS in New York.

Some students may be able to offer insight into the ramifications this story might have had on the world if the report was not true.

Identify the responsibilities a reporter has to the stations, the public and himself. This can be done in writing, probably a paragraph.

EVALUATION:

1. In the 1980's journalism is an expanding and competitive field. A high school student considering this occupation would probably need to study and show particular aptitude for ...

   a) English
   b) Writing
   c) Typing
   d) Printing

2. When Manuella investigated employment as a reporter at a newspaper, she found there were no positions available. She should ...

   a) give up and go home.
   b) apply for a similar position at a TV station.
   c) write to her Congressman.
   d) consider another occupation.

3. Two important characteristics a person must display to be successful as a journalist are ...

   a) English Literature
   b) Communication Arts
   c) Electrical Technology
   d) Psychology

RESOURCES:

A. Lesson resources:

Rather, Dan, "The Biggest Story of the Century and How I Nearly Blew It," Scholastic Voice, Volume 26, No. 10, January 26, 1978, pages 2-12.

Rather, Dan, and Herskowitz, Mickey, THE CAMERA NEVER BLINKS. William Morrow and Company, New York, 1977.

Freedman, Nancy, JOSHUA SON OF NONE, Dell Publishing Co. New York, 1973.

B. Career resources:

BROADCASTING JOURNALISM: AN INTRODUCTION TO NEWS WRITING M.W. Hall, Hasting House, New York, 1971.

CAREERS IN PUBLICITY, PRESS, MEDIA, Research No. 186, The Institute for Research, Chicago, Ill. 1978.

GUIDE TO PROFESSIONAL RADIO AND TV BROADCASTING, R. Siller.

YOUR CAREER IN COMMUNICATIONS, Research No. 19, The Institute for Research, Chicago, Ill. 1977.

INTRODUCTION TO MASS COMMUNICATIONS, W.K. Agee, P.H. Ault, and E. Emery, Harper and Row, New York 1976.

OPPORTUNITIES IN BROADCASTING, Elmo I.Ellis, Vocational Guidance Manuals, National Textbook Co., Skokie, Ill. 1977.

Colleges and Universities with Radio/TV majors: (many others)

Trenton State College, Trenton, New Jersey 08619.

Glassboro State College, Glassboro, New Jersey 08028.

Columbia University, School of the Arts, New York, N.Y. 10027.

Temple University, Philadelphia, Pa. 19122.

"TV: An Inside View," filmstrips 97RF0015 set, Educational Audio Visual, Inc. Pleasantville, N.Y. 10570.

Visit the newsroom of a local TV station.

A writer of news or anchorperson from a local TV station as a guest speaker.

CURRICULUM GUIDE

CLUSTER: Fine Arts and Humanities

JOB FAMILY: Writer - translator

SUBJECT AREA: English

NAME OF COURSE: Accelerated English I

NAME OF UNIT: Literature

TIME ALLOWED: fifteen - twenty minutes

MAJOR IDEA: Demonstrate the differences in prose style between two translations of the same work and determine which translator's product is preferable.

OBJECTIVES: Read and point out the differences in language in two translations of ONE DAY IN THE LIFE OF IVAN DENISOVICH.

Determine why one is better than the other.

Consider the factors a translator must keep in mind when translating from the original into another language.

CONTENT: At the conclusion of study on ONE DAY IN THE LIFE OF IVAN DENISOVICH, the teacher brings to the attention of the class another translation of the first three pages of the novel. After picking out the differences in style and language, the students should recognize that one translation uses more American words than the other. Question whether the main idea of the book changes. Discuss the problems a translator faces when transcribing a text from the original language into another language (English). This idea should be particularly interesting since many of Solzhenitsyn's works had to be smuggled to Europe for translation and publication.

ACTIVITIES: The class has read ONE DAY, Bantam edition translated by Max Haward and Ronald Hingley, and is now given another translation of the first three pages of the novel from the Signet edition translated by Ralph Parker. Students should read the ditto pages and underline the different terms found in Parker's version. Attention should be given to sentence structure changes too.

The teacher asks which version members of the class prefer and why. Some will like the more American version; others the more Russian.

The duties of a Translator are discussed. Places of employment and how manuscripts of foreign works reach publishers are presented. Note that students taking foreign languages are essentially performing the same functions as a translator when they transcribe from the foreign language studied into English. Many feel that being an interpreter at the United Nations is the only occupation for a foreign language major. Literary translator is another field for the student interested in pursuing a foreign language who is also a capable English writer.

EVALUATION:

1. In order to become a translator, a person must:

   a) have excellent reading, writing, and speaking skills in both foreign and native languages.
   b) have relatives living in a foreign country.
   c) have studied foreign languages in high school.
   d) own a foreign car which takes diesel fuel.

2. Maurice has been a translator in the United Nations for several years and would now like to change jobs and find one in which he can use his foreign language background and writing talent. He might find employment with ...

   a) a service station.
   b) a book publisher.
   c) a decorator.
   d) a hospital.

3. A high school student interested in pursuing a career as a translator needs information about the requirements and duties the job entails. A good source of information might be the student's ...

   a) English teacher and club advisor.
   b) foreign language teacher and guidance counselor.
   c) Stamp Club sponsor and history teacher.
   d) school principal and a local foreigner.

RESOURCES:

A. Lesson resources:

ONE DAY IN THE LIFE OF IVAN DENISOVICH translated by Max Hayward and Ronald Hingley, Bantam 1963.

ONE DAY IN THE LIFE OF IVAN DENISOVICH translated by Ralph Parker Signet book by the New American Library, 1963.

"Solzhenitsyn" filmstrip, Thomas S. Klise Company, P.O. Box 3418, Peoria, Illinois 61614.

Other works by Alexander Solzhenitsyn -- CANCER WARD, THE FIRST CIRCLE, THE GULAG ARCHIPELAGO, AUGUST, 1914.

B. Career resources:

Careers with Foreign Languages, Angelo Cohn.

Opportunities in a Foreign Language Career, Dr. Theodore Heubener Vocational Guidance Manuals, Inc., Louisville, Kentucky, 1975.

Communications-Related Occupations: Interpreter, Bulletin 1955-35 regional office of the Bureau of Labor Statistics, U.S. Dept. of Labor.

American Translators Association, P.O. Box 489,
Madison Square Station, New York, N.Y. 10010.

The Information Center, The United Nations, New
York, N.Y. 10017.

Institute of International Education, 1 East
67th St., New York, N.Y. 10021.

Modern Language Journal - periodical found in library.

Universities with outstanding language departments, such as:

American University, Massachusetts and Nebraska
Ave. N.W. Washington, D.C. 20016.

Indiana University, 1825 North Side Blvd.,
South Bend, Indiana 46615.

Middlebury College, Middlebury, Vermont 05753.

A foreign language teacher might speak to the class in more detail about the job of a translator for a publishing company. One of the teachers may have/may be employed in such work.

CURRICULUM GUIDE

CLUSTER: Hospitality and Recreation

JOB FAMILY: Chef

SUBJECT AREA: Foreign Language

NAME OF COURSE: Level 1

NAME OF UNIT: Cooking Lesson

TIME ALLOWED: One class period

MAJOR IDEA: Demonstrate and perform the job of chef through a cooking lesson given in the target foreign language.

OBJECTIVES: Understand directions given in the target foreign language for a recipe.

Perform some of the tasks involved in organizing the ingredients and executing the recipe.

Look for skills necessary to understanding a cooking lesson in another foreign language.

CONTENT: The teacher may introduce the lesson by demonstrating a recipe to the group in the foreign language. A teacher prepared recipe may be distributed in advance so that questions may be put to the student as in the following example: Quando usamos la crema? a) ahora, b) nunca, c) Tardes.

The student may raise his/her hand to demonstrate comprehension. One or more students may assist the teacher in the preparation of the recipe.

ACTIVITIES: The teacher may wish to distribute recipes written in the target foreign language and ingredients to specific groups. The business of groups may well be aided if a home economics room with several cooking bays can be reserved to accommodate the group. The teacher may monitor groups by asking questions in the target foreign language. The student may be expected to communicate solely in the target foreign language. The completed recipe may be judged and sampled.

EVALUATION: I. Identify the following cooking terms in Spanish:

1. tablespoon
2. teaspoon
3. boil
4. mix
5. cup
6. pour
7. recipe
8. cook
9. spicy
10. oven

II. Choose the best answer for the following:

1. Jeff is planning a Mexican dinner. Which would be the most appropriate meal?

   A. rice and beans
   B. chocolate mousse
   C. enchiladas
   D. fish and chips

2. When one thinks of Mexican food, what comes to mind?

   A. bland
   B. sweet
   C. spicy
   D. bitter

3. A main staple in the Mexican diet is:

   A. potatoes
   B. maize/corn
   C. chicken
   D. rice

4. A supposed method for cutting hunger, used by Mexican Indians, is to eat:

   A. beans
   B. tomatoes
   C. mangos
   D. chili peppers

5. The Mexican diet is centered around the use of:

   A. bean sprouts
   B. empanadas
   C. tortillas
   D. cavadellis

RESOURCES: With the aid of a dictionary the teacher may find useful: recipes in Bon Apettite: (magazine); Gourmet (magazine); Women's Day: (magazine); Family Circle: (magazine); Redbook: (magazine); local newspapers, regional cookbooks; NY Times International Cookbook.

CURRICULUM GUIDE

CLUSTER: Business and Office

JOB FAMILY: Employment of Bilingual & Multilingual Persons

SUBJECT AREA: Foreign Language

NAME OF COURSE: Foreign Language; Level 1

NAME OF UNIT: Why Take a Foreign Language?

TIME ALLOWED: One Class Period

MAJOR IDEA: U.S. companies do not have the technological edge they once had. Therefore to sell overseas they must be able to talk in the local languages. This American shortcoming is to be recognized in this unit.

OBJECTIVES: Explore job possibilities that have been available in the past to select few who are bilingual. Instruct students in ways that will best prepare them to avail themselves of such job opportunities.

ACTIVITIES: After reading an article similar to one printed in the Philadelphia Inquirer, Business Section, Wed., April 25, 1979, 3-C, students should be able to respond to questions which are formulated with the main ideas of the article as their basis.

Newspapers either in English or the target foreign language may be circulated which document the availability of foreign language jobs to applicants. Expecially helpful locally are the NY TIMES classified ads which regularly appear on Sundays. Students may clip, circle in colored ink, or make notations of any jobs that advertise for speakers of other languages.

The teacher may wish to make a chart on the blackboard which will help clarify jobs, hiring agencies and locations around the world. This example may suggest an appropriate beginning for the teacher (information is correlated with the attached article):

(Country) (Area)	WESTERN EUROPE	EASTERN EUROPE	ORIENT	MID-EAST	OTHER
(Language required)	German	Russian	Chinese; Japanese	Arabic; Persian	Portugese (Brazilian)
(Hiring Agency or Company)	Mercedes-Benz; Department of Defense Schools	CIA	CIA	CIA	US Insurance Co., overseas assignment

The student may be able to classify jobs, hiring agencies, and pinpoint job locations. The student may wish to write to and/or call the agency placing the ad for more detailed or follow-up information.

The Teacher may wish to ask one or more students to read the ad that he/she has located and then classify the important information on the chart for the whole class.

The Teacher may wish to conduct part or all of the lesson in the target foreign language. The student may be expected to demonstrate comprehension of material spoken in the target foreign language.

EVALUATION: The teacher may wish to evaluate each student subjectively on the basis of his/her participation and involvement in the class activity or ability to classify a specific ad as to the criteria decided upon for a blackboard chart.

Or, the teacher may wish to prepare and/or collect real or imagined ads for classification in a test-like manner. A blank chart may be distributed along with the ads for classification. Based on a teacher prepared 'answer key' the teacher may be able to evaluate the students objectively.

RESOURCES: Newspaper articles; CLASSIFIED ADS; Language Association statistics for enrollments in Foreign Langauges (if other statistics are desired); occupational resources available in the library or career reference room; teachers; employers; businessmen and women; people involved in the occupation.

CURRICULUM GUIDE

CLUSTER: Transportation

JOB FAMILY: Flight Attendant

SUBJECT AREA: Foreign Language

NAME OF COURSE: Level 1

TIME ALLOWED: One class period

MAJOR IDEA: Demonstrate and perform the job of flight attendant.

Through a simulated classroom flight to the country of the language being taught, reproduce many of the activities of a flight attendant.

Compile a list of duties and responsibilities for a flight attendant.

Discuss the advantages of career opportunities for a flight attendant.

CONTENT: The teacher may wish to act as a flight attendant in a simulated flight experience. The students are arranged in a seating plan which reflects the interior cabin of a commercial air craft.

ACTIVITIES: The teacher has a movable cart and a ready supply of previously assembled items such as magazines, newspapers in the target foreign language, paper cups for imaginary beverages, stage money in the appropriate foreign currency, a movie projector screen in the center aisle of the airplane, etc. The teacher as flight attendant welcomes the students/travelers to the flight, explains safety procedures and discusses matters of time and distances appropriate to the target foreign country of destination in the appropriate target foreign language. The flight attendant also moves through the aisle distributing magazines, newspapers, pouring imaginary beverages, distributing registration documents, customs forms, etc.

EVALUATION: I. Identify the following terms:

1. flight
2. plane
3. stewardess
4. pilot
5. stop-over
6. ticket
7. departure
8. return
9. customs
10. reservations
11. passport
12. seat
13. baggage
14. claims
15. documents/personal effects

II. Choose the best answer for the following:

1. In order for a speaker of a foreign language to be understood, one must:

   A. speak loudly.
   B. speak slowly.
   C. speak at a normal pace, enunciate properly.
   D. acquire an accent.

2. Sara is from a bilingual home and hopes to pursue a career in the airlines as a stewardess. What might be a subject she would take to further her bilingual background?

   A. Anthropology
   B. Geometry
   C. Spanish
   D. Psychology

3. Which of the following would be a warning not to smoke at the present time?

   A. No nadar
   B. No escupir
   C. No fumar
   D. Se prohibe hablar

4. Which of the following phrases would tell the passenger to fasten the seatbelt?

   A. Póngase el cinturón
   B. Quítese el cinturón
   C. Póngase el sombrero
   D. Quítese los zapatos

RESOURCES: Any literature available to the teacher from national flag carrier, commercial airlines; such as maps, time conversion schedules, cost of services rendered aloft, employee benefits available to flight attendants, immigration and custom forms from appropriate U.S. agencies, etc.

CURRICULUM GUIDE

CLUSTER: Business and Office

JOB FAMILY: Import Merchant

SUBJECT AREA: Foreign Language

NAME OF COURSE: Level 1

NAME OF UNIT: Import Merchant

TIME ALLOWED: Two class periods

MAJOR IDEA: Demonstrate and perform the job of an import merchant (in the target foreign language).

OBJECTIVES: Understand cultural exchange and career employment opportunities available to import merchant.

Through knowledge of target foreign language, solve and perform some of the tasks an import merchant would face.

CONTENT: The student will be involved in the linguistic and merchandizing aspects of the import merchant. The student will be performing some of the duties of an import merchant by responding in the target foreign language to situations which an import merchant encounters.

ACTIVITIES: The teacher may wish to create a specific environment for one particular import item: eg. shoes, in order to expedite the learning situation or research may be assigned an evening before the class begins this lesson. The teacher may wish to prepare a blank inventory grid onto which the student may enter items, catalogue numbers, model, style, cost, duty tax, local, state, federal regulations, etc. The student should calculate the cost of the merchandise and be prepared to answer several questions put forth by the teacher as in an actual import merchants' telephone conversations. The following is offered as an example:

A. Ciao, Roberto (Hello, Robert)

B. Tomaso! Stavo pensando di te.
(Tom! I've been thinking about you)

Ho cinquanta paio di scarpe per i uomini.
(I have 50 pairs of mens' shoes)

A. Che stilo? (What style)

B. Moderno. Ne vuoi? (Modern. Do you want any?)

The student can question the teacher for prices and try to make a good purchase. The teacher may initiate the conversation by "calling" a student. A phone prop or language laboratory are adaptable.

EVALUATION: I. Identify the following terms:

1. manifest
2. order
3. trailer
4. customs inspector
5. trailer numbers
6. port
7. commodity
8. shipper
9. cost
10. freight

II. Choose the best answer for the following:

1. John is interested in helping his father in his importing business of Mexican crafts. Which combination of courses would be helpful?

   A. Geometry, Spanish, Anthropology
   B. Typing, Bookkeeping, Portuguese
   C. Spanish, Accounting, Typing
   D. English, Spanish, History

2. To whom would one call in order to get a booking for a trailer on a ship going to Puerto Rico?

   A. Eastern Airlines
   B. Sealand
   C. Flying Tiger
   D. Puerto Rico Marine Management, Inc.

3. In order to import pineapples, papaya, and bananas from Puerto Roco, it would be helpful to know the following skills:

   A. knowledge of tropical fruit
   B. knowledge of Spanish language
   C. knowledge of U.S. importing laws
   D. all of the above

4. Keila is Columbian, now living in the U.S., and wishes to start an importing business between her native country and the U.S. What are essential skills that she will need to begin her business?

   A. clerical skills
   B. communication skills
   C. artistic skills
   D. manual skills

RESOURCES: Harbor Imports, NYC, 34th Street is shoe import company which may be able to provide a speaker or answer telephone inquiries. Look for some one closer in your telephone directory.

Reference manuals of all sorts including overseas shipping and postage rates. Information Please Almanacs provide details and comparable statistics for world geographic areas and exports.

CURRICULUM GUIDE

CLUSTER: Communications, Transportation, various, etc.

JOB FAMILY: Interpreter

SUBJECT AREA: Foreign Language

NAME OF COURSE: Level 1, Foreign Language

NAME OF UNIT: Your Career in Foreign Language

TIME ALLOWED: One Week: 5 class periods

MAJOR IDEA: In today's changing world all students must be aware of the need for greater diversity in their field of study. With the continuing increase in world trade, and the rapid shrinkage of travel time brought on by the jet age, monolingual individuals are at a clear disadvantage in comparison to their bilingual and multilingual counterparts.

The ability to communicate effectively with large groups of people whose primary language is not English cannot be emphasized too much.

OBJECTIVES: The student will experience the relation of foreign language education to career opportunities and the advantage of bilingual or multilingual individuals in today's job market.

ACTIVITIES: The Teacher - The Teacher will structure and lead the review and consequent discussion of items covered in the first three Career Investigation sessions. The Teacher may wish to present an original synthesis of review materials or cull information from the filmstrips as interest dictates or clarification may be required. This may be done in either English or the target foreign language. An interesting but optional experience which may be appropriate at this time is scheduling one or more speakers whose career in foreign language may serve as a platform for question-and-answer type discussion as interest and/or clarification may be required. Likewise, this may be done in either English or the target foreign language.

The Student - The student may be required to demonstrate comprehension of the target foreign language material if the Teacher has elected to conduct this phase of the program in the foreign language. The student may be required to keep a list of the career possibilities and gear his/her review towards either an oral or written evaluation of the material presented in previous sessions and discussed in this review session. The student may be required to participate in any question and answer sessions.

EVALUATION: Indicate to the left whether or not you believe the following statements are true or false.

1. A simultaneous interpreter speaks while the speaker continues to talk.
2. A consecutive interpreter takes turns with the speaker.
3. The best way to acquire a foreign language and speak as near native as possible is to study a foreign language in college in your native country.
4. The difference between an interpreter and a translator is that an interpreter should be a native speaker.
5. The U.S. Department of Immigration would need to employ many translators.

RESOURCES:

Materials:
Filmstrip projector, filmstrips, texts of the filmstrips (in either English or the target (foreign) language, discussion guide (if the teacher so desires) and oral test questions (if the teacher so desires).

1. 'VICS': Introduction to Vocations, Discovering & Investigating Careers at the Middle School Level. Published by the State of New Jersey Department of Education in cooperation with the Bureau of Special Programs. Of special interest is the pamphlet and reprint bibliography pp. 133 f.

2. Sexism, Elimination of Sex Bias/Sex Stereotyping. N. J. Dept. of Ed. An interesting compilation of materials designed to present awareness of overcoming barriers to careers and employment through legal and statistical documentation. Very good for the student who wishes to enter a career which has in the past been primarily considered the domain of one specific sex.

   (See also Career Ideas, Vol. 1 #4, N. J. Dept. of Ed., Middlesex County Office, New Brunswick, N. J. 08901, Editor: Donald F. Sprou.)

3. 'COPS': California Occupational Preferences System. An inventory test which will help the student find out which career suits his/her interests, etc. Published by Edits, P.O. Box 7234, San Diego, California 92107.

4. Directory of Peoples in Non-Traditional Jobs, N. J. Dept. of Ed., The Division of Vocational Education and Career Preparation. A list of people to contact who work in non-traditional roles. Good first-hand source material. New Jersey and nearby areas stressed.

5. CE, Implementing Career Education: Exemplary Practices in California Public Schools. California State Department of Education, Sacremento, 1977. Many areas of endeavor are covered in depth from K-12 with separate manual for community involvement. Excellent selected references in each section.

6. Career Education: Selected U.S. Government audio-visuals. Distributed by National Audio Visual Center, National Archives and Record Service, General Services Administration, Washington, D.C. 20409.

7. Key Resources in Career Education: An Annotated Guide. April, 1976. From the U.S. Dept. of Health, Education and Welfare, National Institute of Education. 408 pages of detailed information about nearly every phase of career education.

8. Vocational Biographies. Monthly detail of 25 careers. Sauk Center, Minn. 56378. 1973 to the present.

9. Your Career in Foreign Languages. Gessler Publishing Co., Inc., New York, N.Y.

CURRICULUM GUIDE

CLUSTER: Health

JOB FAMILY: Lab technicians, pharmacists, research scientists etc.

SUBJECT AREA: Foreign Language

NAME OF COURSE: Level 1, Foreign Language

NAME OF UNIT: Your Career in Foreign Language

TIME ALLOWED: One class Period

MAJOR IDEA: In today's changing world all students must be aware of the need for greater diversity in their field of study. With the continuing increase in world trade, and the rapid shrinkage of travel time brought on by the jet age, monolingual individuals are at a clear disadvantage in comparison to their bilingual and multilingual counterparts.

The ability to communicate effectively with large groups of people whose primary language is not English cannot be emphasized too much.

OBJECTIVES: The student will experience the relation of foreign language education to career opportunities and the advantage of bilingual and/or multilingual individuals in today's job market.

ACTIVITIES: The Teacher - The Teacher will operate the filmstrip projector, showing filmstrip #3., Health and Public Service Careers. The text of the filmstrip is included in session #1 of this series. The captions for this filmstrip may be presented in either English or the target foreign language as the Teacher deems suitable.

The Student - The student may be required to demonstrate comprehension of the foreign language material if the Teacher has elected to deliver the text of the filmstrip in the target foreign language. The student may be required to keep a list of career possibilities that appeal to him/her for future research.

EVALUATION: Examples for evaluating achievement of objectives.

The following are examples of test questions which may be used for the evaluation test for the entire unit or orally adapted for individual sessions in either English or the target foreign language.

1. There are two basis techniques for an interpreter as seen in the filmstrip about communications careers. A United Nations interpreter may translate simultaneously while the speaker continues to talk or he/she may:

   a) speak consecutively after the speaker has finished a statement. In consecutive translation the speaker and the interpreter take turns speaking. (This is the correct response.)

   b) speak extemporaneously without taking notes or accurately quoting the speaker. (This is an incorrect response.)

   c) speak orally paraphrasing the speaker's words and ideas. (This is an incorrect response.)

2. True-False. Indicate to the left of the question whether or not you believe the best answer for this question is true or false.

   True
   a. If a Personnel Interviewer senses that the applicant may be more comfortable in a language other than English, she/he may use his/her foreign language to conduct the interview in the applicant's language - to put her/his at ease.

RESOURCES:

Introduction: 'Your Career and Foreign Languages', Gessler Publishing Company, Inc., New York, N. Y., 3 part filmstrip.

Materials:
Filmstrip projector, filmstrips, texts of the filmstrips (in either English or the target (foreign) language, discussion guide (if the teacher so desires) and oral test questions (if the teacher so desires).

CURRICULUM GUIDE

CLUSTER: Transportation

JOB FAMILY: Travel Agent

SUBJECT AREA: Foreign Language

NAME OF COURSE: Level 1, Foreign Language

NAME OF UNIT: Your Career in Foreign Language

TIME ALLOWED: One class period

MAJOR IDEA: In today's changing world all students must be aware of the need for greater diversity in their field of study. With the continuing increase in world trade, and the rapid shrinkage of travel time brought on by the jet age, monolingual individuals are at a clear disadvantage in comparison to their bilingual and multilingual counterparts.

The ability to communicate effectively with large groups of people whose primary language is not English cannot be emphasized too much.

OBJECTIVES: The student will experience the relation of foreign language education to career opportunities and the advantage of bilingual and/or multilingual individuals in today's job market.

ACTIVITIES: The Teacher - The Teacher will operate the filmstrip projector, showing filmstrip #2., Travel & Finance. The text of the filmstrip is available from Gessler Publishing Co., Inc. (see resources). The captions for the filmstrip may be presented in either English or the target foreign language as the Teacher deems suitable.

The Student - The student may be required to demonstrate comprehension of the foreign language material if the Teacher has elected to deliver the text of the filmstrip in the target foreign language. The student may be required to keep a list of career possibilities that appeal to him/her for future research and/or a test in session 5.

EVALUATION: Examples for evaluating achievement of objectives.

The following are examples of test questions which may be used for the evaluation test for the entire unit or orally adapted for individual sessions in either English or the target foreign language.

1. There are two basis techniques for an interpreter as seen in the filmstrip about communications careers. A United Nations interpreter may translate simultaneously while the speaker continues to talk or he /she may:

   a) speak consecutively after the speaker has finished a statement. In consecutive translation the speaker and the interpreter take turns speaking. (This is the correct response.)

   b) speak extemporaneously without taking notes or accurately quoting the speaker. (This is an incorrect response.)

   c) speak orally paraphrasing the speaker's words and ideas. (This is an incorrect response.)

2. True-False. Indicate to the left of the question whether or not you believe the best answer for this question is true or false.

   True
   a. If a Personnel Interviewer senses that the applicant may be more comfortable in a language other than English, she/he may use his/her foreign language to conduct the interview in the applicant's language - to put her/him at ease.

RESOURCES: Introduction: 'Your Career and Foreign Languages', Gessler Publishing Company, Inc., New York, N.Y., 3 part filmstrip.

Materials:
Filmstrip projector, filmstrips, texts of the filmstrips (in either English or the target (foreign) language, discussion guide (if the teacher so desires) and oral test questions (if the teacher so desires).

CURRICULUM GUIDE

CLUSTER: Transportation

JOB FAMILY: Travel Agent

SUBJECT AREA: Foreign Language

NAME OF COURSE: Level 1

NAME OF UNIT: Planning a Tour Group

TIME ALLOWED: Two class periods

MAJOR IDEA: Demonstrate and perform the job of a travel agent planning a tour group.

OBJECTIVES: Understand cultural attractions of foreign areas.

Perform some of the tasks of planning a tour group to a foreign country.

Decide on a complete tour package price which offers the perspectives the student as tour agent has felt best achieves his/her goals for the tour.

Write up catchy titles and captions in the target foreign language for a brochure suitable for distribution which describes the tour package.

CONTENT: The student will be involved in the economics and business aspects of cultural activities by performing some of the duties of a tour group agent. The teacher may wish to cite an exemplary criteria for achieving a good tour package. Such items as devaluation, travel dollar, bargain destinations, taxes, gratuities, etc. may be eliminated.Choosing a geographic area familiar to the student will enable him/her to research some items through persentations in basic foreign language texts. Dictionaries and foreign travel brochures should be readily available to the student.

ACTIVITIES: The teacher should outline two or three objectives, set a spending ceiling, limit travel time, destinations and set any other ground rules desired for this exercise. The student must justify the tour package's appeal by captioned photos and competitive pricing policies. A tour representative may be invited to answer questions or give a presentation in the target foreign language. The teacher may well be able to regulate the experience by distributing materials such as:

1. Reservations listings and prices for hotels (usually available from major chains world wide such as Hilton International).
2. Almanacs (for currencies conversion, maps, details of history and culture of target foreign courtry).
3. A basic Level 1 Foreign Language Text.
4. Travel brochures (with prices).
5. Rental rates (cars).
6. Airfares (easily available from libraries or by telephone inquiry), ship lines, bus lines, foreign train time tables.

EVALUATION: The teacher may evaluate the student's final tour package on the basis of previously stated requirements. Several of the better tour packages may be presented to the class for appreciation. Elements of expression may be evaluated in the written tour brochure with appropriate pictures and foreign language captions.

Follow-up: The better tour packages may be compared with commercially circulated brochures for items of interest which may stress or reflect requirements originally indicated. The teacher may wish to deliver this portion of the activity in the target foreign language.

RESOURCES:

1. Hopke, William E., ed., "Travel Agent," The Encyclopedia of Careers and Vocational Guidance, J.G. Ferguson Publishing Co., Chicago, 1978, Vols. I & II.
2. Almanacs, Embassy brochures, historical and cultural exerpts from encyclopedias, foreign language publications and realia, travel brochures, hotel reservation brochures, etc.

CURRICULUM GUIDE

CLUSTER: Public Service

JOB FAMILY: Auto Mechanic

SUBJECT AREA: Mathematics

NAME OF COURSE: Basic Arithmetic, Algebra

NAME OF UNIT: Graphs and Linear Relations

TIME ALLOWED: 2 - 3 class periods

OBJECTIVES: Teach the concept of graphs of linear relations.

Teach the students how to use graphs to obtain values.

Relate the use of graphs to determine the setting on a torque wrench which is used by an auto mechanic.

Relate the use of mathematics to the job of an auto mechanic.

CONTENT: The graph of a linear relation on a plane is a straight line.

A torque wrench is used to fasten down a device such as cylinder heads on an engine or spark plugs. The turning force (torque) should remain constant. If an adapter is used to either lengthen or shorten the wrench this will change the torque and the setting should be adjusted. The formula for the setting is $S=T[L/(L+A]$

S, setting on the wrench - foot - lbs.

T, torque needed - foot - lbs.

L, length of the wrench in inches

A, length of the adapter in inches - if the adapter shortens the wrench, A is negative.

ACTIVITIES: Teacher presentation on graphs of linear relations - construction and reading values. Discussion of the use of a torque wrench and its application to an auto mechanic's job.

The students should construct graphs for various lengths of torque wrenches. This can be done using graph paper and the given formula. Once the graphs are completed problems can be assigned similar to the example given in the content section using the new graphs. Students may be asked to find other areas where an auto mechanic uses mathematics.

EVALUATION:

1. How does an auto mechanic use a torque wrench?
2. What does an auto mechanic need to do to the wrench if an adapter is used to either lengthen or shorten it?
3. Explain the variables in and state the formula an auto mechanic would use in the situation described in problem 2.
4. Transform the formula in problem 3 and solve for 2.
5. Which additional high school courses could a person take if they wanted to prepare for a career as an auto mechanic?
6. Which companies or industries would employ auto mechanics?
7. What is the employment outlook for auto mechanics?
8. Identify four colleges or universities that offer programs for the preparation of a career as an auto mechanic.

RESOURCES: A torque wrench and a variety of adaptors.
Local auto mechanic.

CURRICULUM GUIDE

CLUSTER: Personal Services

JOB FAMILY: Banking Representative

SUBJECT AREA: Mathematics

NAME OF COURSE: Basic Arithmetic, Algebra

NAME OF UNIT: Simple Interest Problems

TIME ALLOWED: 2 - 3 class periods

OBJECTIVES: Teach the concept of simple interest.

Evaluate the formula $I=P \times R \times T$

Solve investment problems.

Relate the use of mathematics to the job of a banking representative.

CONTENT: An investment is made. The amount invested is called the principle (P). Interest (I) is earned on the investment. The amount of interest earned on this investment depends on the annual rate (R) and time (T). The relation is $I=P \times R \times T$.

Example: An investment of $500 is made. The annual rate of interest is 6.5%. The investment is made for 1 year. Find the interest.

$$\begin{aligned} I &= \$500 \times 6.5\% \times 1 \\ &= \$500 \times .065 \times 1 \\ &= \$32.50 \qquad \text{interest } \$32.50 \end{aligned}$$

ACTIVITIES: Teacher presentation of simple interest and the formula $I=P \times R \times T$.

Students should be given exercises on computing simple interest on a number of different types of investments. The problems can be varied so that the student is asked to determine different parts of the formula depending on the given data. (Ex. find the amount of the investment knowing the interest, rate, and time).

Students may be asked to research the various interest rates on different types of investments. (Ex. Savings

Accounts, Saving Certificates, Bonds etc.)*

Students may be asked to calculate the interest earned on an investment made in each of the above types.

*This can be done by visiting a local bank and discussing investments with a banking representative.

EVALUATION: Match the following types of interest with the appropriate method for computing the interest:

1. simple interest
2. quarterly balance and withdrawal method
3. daily balance method
4. compound interest

    a) No interest is paid on money withdrawn during an interest period, money deposited (before the tenth of the month) during an interest period draws interest from the first day of the month.
    b) $A = p\ (1 + r)^n$
    c) $i = p\ r\ t$
    d) Divide the annual interest rate by 4 to find the quarterly rate, divide this rate by the number of days in the quarter, multiply this (rounded to 8 decimal places) by the whole number of dollars.

5. What type of an account uses the daily balance method?

6. What are four different time intervals that interest can be paid? compounded?

7. Name three different types of investments that yield interest.

8. What are three important factors to consider when choosing a bank or institution in which to save?

9. Name four places where one may open a savings account.

10. Compute the simple interest paid on these savings accounts.

Principal	Interest Rate	Time	Interest
350	6.5%	18 mo.	
285	4.25%	27 mo.	
425	6¼%	38 mo.	
2940	5%	2 yrs. 4 mo.	
720	5½%	3 yrs. 5 mo.	

11. Which additional high school courses could a person take if they wanted to prepare for a career as a banking representative?

12. Which companies or industries would employ a banking representative?

13. What is the employment outlook for banking representatives?

14. Identify four colleges or universities that offer programs for the preparation of a career as a banking representative.

RESOURCES: Speaker - Local banking representative.

CURRICULUM GUIDE

CLUSTER: Business and Office

JOB FAMILY: Computer Operator

SUBJECT AREA: Mathematics

NAME OF COURSE: Computer I

NAME OF UNIT: Computer Operations

TIME ALLOWED: 2 - 3 class periods

OBJECTIVES: Teach the skills and duties necessary to operate a computer.

Relate the career of a computer operator to mathematics.

CONTENT: Mathematics is important to a computer operator if he or she is to understand how computers operate. The mathematics will help develop the logical reasoning ability necessary for a computer operator.

The computer operator performs a relatively simple but important job. He or she is responsible for operating the computer and to see that the work is done correctly and on time. The duties consist of getting and returning cards, tapes and discs, loading and unloading the computer, and checking and recording the jobs completed.

Many programmers start out as computer operators because it gives them knowledge of the computer's operation.

ACTIVITIES: The students should be given the opportunity to see a computer operator at work. This can be demonstrated by the computer instructor and/or by a regular computer operator at a local computer facility. Once the students are familiar with these activities and properly instructed they should be given the chance to perform these functions on a computer.

EVALUATION: 1. What are the duties of a computer operator?

Answer the following four questions as if you were going to turn on the computer using the "BASIC bootstrap."

2. If the entire computer is off, tell how to turn it on.
3. Give the steps to get a good read of the BASIC bootstrap. (Use Octal numbers.)
4. If you have a good read what number in base 8 should be on the register display?
5. Give the steps following a good read to get the computer to print out READY on the TV screen.
6. If you wish to use the method of booting the system using the program "LOAD," explain how to get on the DOS-M system.
7. Once operating within the DOS-M system, explain how to get the program you want.
8. What are the four files you can choose to use? Explain what buttons to push once chosing a file.
9. What should you turn off, once the teletypes print READY?

RESOURCES: Visit to a local computer facility.
Speaker.

CURRICULUM GUIDE

CLUSTER: Business and Office

JOB FAMILY: Computer Programmer

SUBJECT AREA: Mathematics

NAME OF COURSE: Computer I

NAME OF UNIT: Programming

TIME ALLOWED: 2 - 3 class periods

OBJECTIVES: Teach the skills and duties of a computer programmer.

Relate the career of computer programming to mathematics.

CONTENT: Computer programmers need to understand mathematics. Working with numbers, formulas and mathematical symbols and concepts is part of their everyday job.

A computer, in order to perform the functions it was designed to do, must be programmed. To be programmed means to give the computer a series of instructions which will do a job. Once the job has been determined the programmer will make a flow chart showing the various steps. Then he or she will begin to write the instructions for the computer. Once the instructions are complete the programmer will check to see if they really work - that it produces the proper information.

A programmer's duties also may include revising old programs to get additional information, or to work with new or different computer equipment. Computer programmers, if they are good enough, can become system analysts.

ACTIVITIES: The students should be given the opportunity to see a computer programmer at work. This can be demonstrated by the computer instructor and/or by a regular computer programmer at a local computer facility. Once the students are familiar with these activities and properly instructed, they should be given the chance to perform these functions.

EVALUATION:

1. What does it mean to program a computer?
2. Name the three basic steps in writing a program.
3. What are some of the other duties of a programmer other than writing programs?
4. Name three languages used by computer programmers.

Using the following chart as a guide, write the following expressions in BASIC. Use your knowledge of order of operations. (It is the same order in BASIC.)

BASIC	A↑2	3*X	M/2+(-5)	2*Y↑3-(2*X)↑2
Expression	a^2	3X	$m \div 2+(-5)$	$2Y^3-(2X)^2$

5. $(a+b)^2$
6. $-X+(-3)^2$
7. $\frac{X^2}{Y^3}$
8. $(X+2)^3 \div (7Y)^2$
9. $2n^3-5n^2+4X-3$

Write the expression for each of the following:

10. 2*A+B
11. B/A↑2
12. 2+3*5
13. X↑3-1
14. 2*2+3
15. 18/3↑2
16. X+3*Y

Extra Credit: Why do they use * for multiplication?

RESOURCES: Visit to a local computer facility.
Speaker.

CURRICULUM GUIDE

CLUSTER: Agri-business and Natural Resources

JOB FAMILY: Farm Manager

SUBJECT AREA: Mathematics

NAME OF COURSE: Basic Arithmetic

NAME OF UNIT: Operations with Whole Numbers, Metric System, Problem Solving

TIME ALLOWED: 2 - 3 class periods

OBJECTIVES Review the operations of whole numbers.

Review the metric system.

Teach the students techniques for solving problems involving operations of whole numbers and the metric system.

Relate the use of mathematics and the metric system to the job of a farm manager.

CONTENT: Go over some examples of each of the basic operations with whole numbers. Work with numbers which are measured in metric units. Discuss the various names of the units used in measuring length, weight and volume. The farm manager is responsible for producing, processing and packaging the farm product. This would involve the following steps: 1) plowing and fertilizing the fields, 2) planting and harvesting the product and 3) transporting and packaging the product.

ACTIVITIES: Teacher presentation on operations with whole numbers and the basic units of the metric system.

The students should complete the following table. A manager has 5 fields to work and is responsible to determine the amount of fertilizer, the weight of the product produced, the number of cases and the number of single units for packaging the product for each field.

Field	Size of field in 1000 sq. meters	15 liters of fert. per 1000 sq. meters	1100 kilo. of produce per 1000 sq. meters	30 cases of produce per metric ton	28 cans of produce per case
1	250				
2	750				
3	560				
4	325				
5	975				

The totals for all 5 fields can be calculated and used as a check. A price can be assigned to a single unit (1 can) of the product and the gross income can be determined. Students can be assigned the problem of finding the costs associated with the different columns in the chart. A field trip to a farm or packaging plant might be beneficial to the students.

EVALUATION:

1. What are the responsibilities of a farm manager with regards to the farm product?

2. What steps do these responsibilities involve?

3. Name the four metric units most often used by a farm manager.

4. Take-home project: Complete the following table: A manager has five fields to work and is responsible to determine the amount of fertilizer, the weight of the product produced, the number of cases and the number of single units for packaging the product for each field.

Field	Size of filed in 1000 sq. meters	12 liters of fert. per 1000 sq. meters	900 kilo. of produce per 1000 sq. meters	28 cases of produce per metric ton	24 cans of produce per case
1	310				
2	480				
3	580				
4	330				
5	950				

a) How many metric tons were produced in all?
b) How many cases were yielded in all?
c) How many cans were needed in all?
d) Each case sold for $7. What was the total sales?

5. Which additional high school courses could a person take if they wanted to prepare for a career as a farm manager?

6. Which companies or industries would employ farm managers?

7. What is the employment outlook for farm managers?

8. Identify four colleges or universities that offer programs for the preparation of a career as a farm manager.

RESOURCES: Speaker - local farm manager.
N.J. Department of Agriculture

CURRICULUM GUIDE

CLUSTER: Personal Services

JOB FAMILY: Interior Designer

SUBJECT AREA: Mathematics

NAME OF COURSE: Basic Arithmetic, Algebra

NAME OF UNIT: Area and Perimeter

TIME ALLOWED: 2 - 3 class periods

OBJECTIVES: Teach the concept of perimeter of a polygon.

Teach the concept of area of some polygons.

Solve problems involving perimeter and area of rectangles.

Relate the use of mathematics to the job of an interior designer.

CONTENT: Perimeter is the distance around a plane figure; the sum of the lengths of the sides of the figure. Perimeter of a rectangle is two times the length plus two times the width. The area of a polygon depends on the type of polygon. The area of a rectangle is the length multiplied by the width.

It is necessary for an interior designer to be able to determine the perimeter and area of the walls and floor of a room. These dimensions are used in determining moldings, draperies, hanging pictures, hanging wall paper, ordering carpet and paint and other things.

ACTIVITIES: Teacher presentation on perimeter and area of various polygons.

Problems should be assigned to reinforce the formulas. Units of measure should be in metric form and an emphasis placed on the difference between linear measure for perimeter and square measure for area. Students can be assigned the problem of finding the dimensions of some or all the rooms in their houses. Then they should calculate the perimeters and areas associated with these dimensions. Units should be in metric.

EVALUATION:

1. Why is it necessary for an interior designer to be able to determine the perimeter and area of the walls and floor of a room?

2. How are scale drawings used by an interior designer?

3. To determine the amount of wall covering needed for insulating a room, what is a simple method that interior designers use?

Using the above method, solve the following problem of an interior designer.

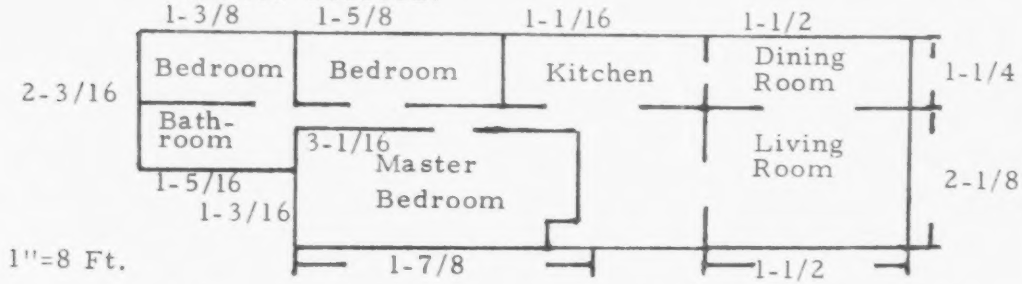
4. How much plaster board should be ordered to cover the interior walls and ceilings for a 23' x 46' house?

5. How many 24-foot rolls of wallpaper 18" wide should be ordered for a 8' x 10' room with an 8' ceiling?

6. One gallon of paint will cover 460 sq. ft. How many gallons and quarts should be ordered for a 15' x 20' room with 8' ceiling?

7. A room 12' x 15' is to be carpeted with carpet costing $13 per sq. yd. What will the carpet cost?

8. What are the actual dimension and area of the master bedroom?


1-3/8
1-5/8
1-1/16
1-1/2
Bedroom
Bedroom
Kitchen
Dining Room
1-1/4
2-3/16
Bath-room
3-1/16
Master Bedroom
Living Room
1-5/16
1-3/16
2-1/8
1"=8 Ft.
1-7/8
1-1/2

Complete the following chart to find the cost of draperies for these windows:

Room	No. of Windows	Width of Material	Amt. of Material Needed per Window	Cost Per Yard	Cost
L.R.	1	45"	4-7/8 yd.	12	
"	2	54"	5-1/4	16	
D.R.	3	45"	4-1/2	12	
Kitchen	1	36"	3-5/8	8	
Master	1	54"	4-2/3	15	
Bedroom	1	54"	5-1/4	12	
B.R.#1	2	45"	4-1/4	14	
B.R.#2	2	54"	3-3/8	12	
Bathroom	1	36"	3-3/4	8	

9. Which additional high school courses could a person take if they wanted to prepare for a career as an interior designer?

10. Which companies or industries would employ interior designers?

11. What is the employment outlook for interior designers?

12. Identify four colleges or universities that offer programs for the preparation of a career as an interior designer.

RESOURCES: Speaker - local interior designer.

CURRICULUM GUIDE

CLUSTER: Public Service

JOB FAMILY: Law Enforcement

SUBJECT AREA: Mathematics

NAME OF COURSE: Basic Arithmetic

NAME OF UNIT: Ratio, Index Formulas

TIME ALLOWED: 2 - 3 hours

OBJECTIVES: Teach the concept of ratio and index formulas. Evaluate a given formula from a data table. Relate the use of index formulas to the study of traffic density on a roadway. Relate the use of mathematics to the job of law enforcement.

CONTENT: Traffic density is the ratio of the average hourly volume for the total number of lanes of a roadway to the total number of lanes. The quotient is the average number of cars per lane per hour. The number of lanes is determined by dividing the total width of the pavement in feet by 10. Fractional lanes less than 0.8 feet are disregarded. Index formula $D=\frac{V}{L}$

V, average hourly volume for all lanes
L, number of lanes
D, average number of cars per lane per hour

ACTIVITIES: Teacher presentation of ratio and simple formulas.
Discussion of traffic density and the use of index formulas.
Students evaluate the formula $(D=\frac{V}{L})$
Form a data table.
Students may be given a project where they collect the necessary data to do a study of traffic density on a roadway.

EVALUATION:

1. What is traffic density? What does this ratio represent? How are the number of lanes determined?

2. How does a police officer use VASCAR equipment to check speeding? What formula is used?

3. How can a police officer determine the speed of a car by measuring skid marks? What formula is used for dry, concrete road? What formula is used for wet, concrete road?

4. In planning to construct a roadway, it is known that the width of the pavement is 59 ft. The projected average hourly volume of cars will be 240 cars. Find the traffic density.

5. The distance between checkpoints along a VASCAR patrolled route is 140 m. A car passed by in 8 seconds. What was its speed?

6. An officer is checking speeds in an 80 Km/h zone. A car passed by at 25m/s. Is this a violation?

Determine how fast the following cars were travelling.

7. A car skidded to a stop on a dry, concrete road. The skid marks were 48 ft.

8. A car skidded to a stop on a dry, concrete road. The skid marks were 120 ft.

9. A car skidded to a stop on a wet, concrete road. The skid marks were 96 ft.

10. Which additional high school courses could a person take if they wanted to prepare for a career as a law enforcer?

11. Which companies or industires would employ a law enforcer?

12. What is the employment outlook for law enforcers?

13. Identify four colleges or universities that offer programs for the prepartation of a career as a law enforcer.

RESOURCES: Speakers - Local police department.
State Department of Transportation.

CURRICULUM GUIDE

CLUSTER: Communication and Media

JOB FAMILY: Photographer

SUBJECT AREA: Mathematics

NAME OF COURSE: Basic Arithmatic - Algebra

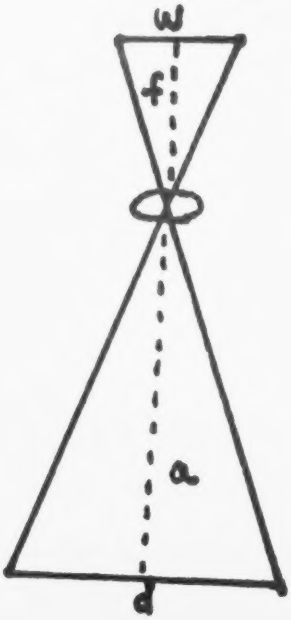
NAME OF UNIT: Ratio and Proportion in relation to similar triangles

TIME ALLOWED: 2 - 3 hrs per week

OBJECTIVES: Teach the concept of ratio and proportion in relation to similar triangles.
Teach problem solving techniques.
Relate ratio, proportion and similar triangles to the study of finding ground distances from distances measured on an aerial photograph.
Relate the use of mathematics to the role of a photographer.

CONTENT: The following diagram shows how similar triangles are formed in the taking of an aerial photograph of a subject at ground level. Since similar triangles have proportional sides the following relationship can be derived: $\frac{f}{a}=\frac{w}{d}$

f, focal length of lens
a, altitude of the plane
w, width of the picture
d, ground distance



Example:
Data f: 6 inches
w: 4 inches
a: 300 feet
d: ?

\$

$$\frac{\frac{1}{2}'}{300} = \frac{\frac{1}{3}'}{d}$$

$$\frac{1}{2}d = 100'$$

$$d = 200 \text{ feet}$$

distance at ground level is 200'

ACTIVITIES: Teacher presentation of ratio and proportion in relation to similar triangles. Discussion of the similar triangles formed in the above diagram and the development of the proportion relating the sides of the triangle.

Obtain an aerial photograph and determine the ground distance between any two points on the photograph. (The altitude of the plane and the focal length of lens must be known.) If the ground distance is known, the formula can be used to determine the altitude of the plane.

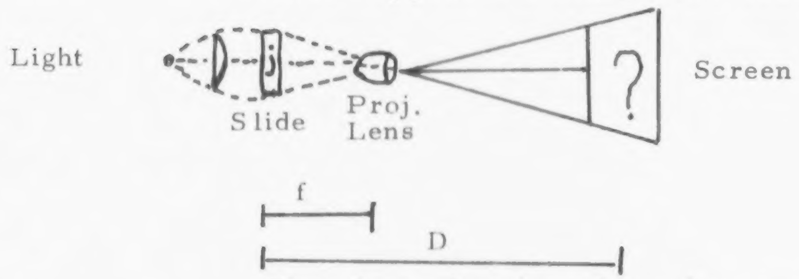
Practice problems should be given which allow the student to determine different parts of the proportion. This can be given in the form of a data table. Students may be asked to research the question of how ratio, proportion, and similar triangles are related in other ways to the career of a photographer.

EVALUATION:

1. State the formula an aerial photographer would use to find distances on the ground.
2. Explain what each variable represents in the formula in question 1.
3. Complete the following chart:

f	a	w	d
50 cm	18,000 m	24 cm	
30 cm	18,000 m	24 cm	
24 cm	18,000 m	24 cm	
50 cm	6,000 m	24 cm	
30 cm	6,000 m	24 cm	
24 cm	6,000 m	24 cm	

4. For a given focal length, as the altitude decreases, what happens to the ground distance?
5. For a given altitude, as the focal length decreases, what happens to the ground distance?



The above drawing shows how a picture on a slide is projected onto a screen. If the picture is magnified M times, the magnifying power is $M=\frac{D-f}{f}$ (f=focal length on lens, D=distance from screen to slide)

6. If the focal length of the lens in a projector is 3 inches, how far from the slide would the screen have to be placed to have a magnifying power of 35?

7. If the focal length is 8 cm and the screen is 312 cm from the slide, what is the magnifying power?

8. Suppose the focal length is 5 inches. You want a magnifying power of 40. How far from the slide would you set the screen?

9. Which additional high school courses could a person take if they wanted to prepare for a career an a photographer?

10. Which companies or industries would employ a photographer?

11. What is the employment outlook for a photographer?

12. Identify four colleges or universities that offer programs for the preparation of a career as a photographer.

RESOURCES: Speaker - local photographer

CURRICULUM GUIDE

CLUSTER: Public Service

JOB FAMILY: Plumber

SUBJECT AREA: Mathematics

NAME OF COURSE: Algebra, Basic Arithmetic

NAME OF UNIT: Right triangles and Pythagorean Theorem

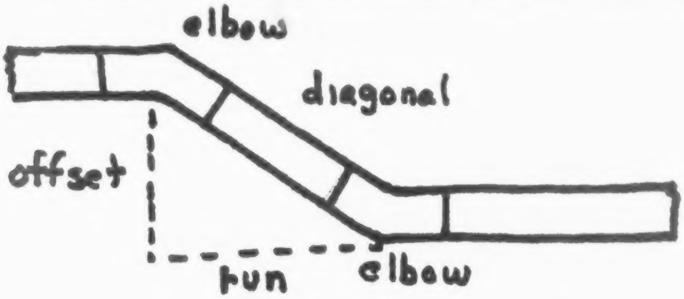
TIME ALLOWED: 2 - 3 hours

OBJECTIVES:

Teach the concept of a right triangle.
Teach the Pythagorean Theorem.
Teach the uses of the Pythagorean rule in solving problems.
Relate the Pythagorean rule to the installation of a pipe line having an offset.
Relate the use of mathematics to the job of a plumber.

CONTENT:

The Pythagorean rule states that the sum of the squares of two sides of a right triangle is equal to the square of the third side (longest side called the hypotenuse). In the installation of a pipe line using an offset, the two sides are the offset and the run and the hypotenuse is called the diagonal.



$(\text{offset})^2 + (\text{run})^2 = (\text{diagonal})^2$

The two types of right triangles used for this type of installation use either 45° elbows or 60° elbows. When 45° elbows are used the offset and the run are equal in length.

Find the length of the diagonal if 45° elbows are used and the offset is 70cm in length.

$$(70)^2 = (70)^2 = (\text{diagonal})^2$$
$$4900 + 4900 = (\text{diagonal})^2$$
$$\sqrt{2(4900)} = \text{diagonal}$$
$$70\sqrt{2}\text{ cm} = \text{diagonal}$$

The diagonal is approximately 98 cm in length.

ACTIVITIES: Teacher presentation of a right triangle and the Pythagorean Theorem. Problems should be assigned to the students to reinforce the rule for finding various distances of the sides of the triangle. Students should demonstrate that the rule only applies to right triangles. Problems involving the installation of pipe lines should be discussed and assigned using 45° and 60° elbows.

A project could be assigned to install a pipe line where a number of obstacles are presented and a variety of solutions are possible. A discussion of the various solutions might suggest a best solution to the problem.

EVALUATION:

1. State the application of the Pgthagorean Theorem that a plumber uses to install a pipe.

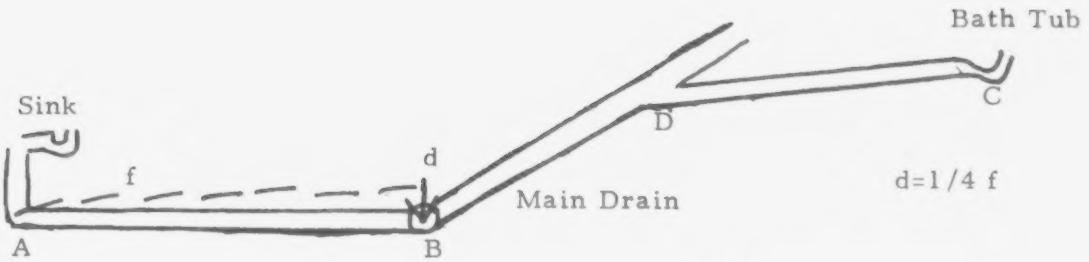
2. What two special right triangles does a plumber use when using two certain elbows? Name these elbows.

3. Find the missing numbers if 45° elbows are used.

o	r	d
3		
	10	
1		

4. Find the missing numbers if 60° elbows are used.

o	r	d
	8	16
	5	
		2



5. It is 8 feet from A to B. How much lower should the main drain be at point B than the bottom of the sink drain at A?

6. It is 6 feet from C to D. How much lower should the main drain be at D than at C?

7. How much drop should there be in the main drain if this pipe is 24 feet long?

8. Which additional high school courses could a person take if they wanted to prepare for a career as a plumber?

9. Which companies or industries would employ plumbers?

10. What is the employment outlook for plumbers?

11. Identify four colleges or unversities that offer programs for the preparation of a career as a plumber.

RESOURCES: Speaker - local plumber

Bolster, L. Carey, H. Douglas Woodbum, and Joella H. Gipson; Consumer and Career Mathematics, Scott, Foresman, Glenview, Illinois, 1978.

Bolster, L. Carey and H. Douglas Woodbum, Mathematics in Life, Scott, Foresman, Glenview, Illinois, 1977.

Goe, William E., Consumer Mathematics, 3rd edition, Harcourt, Brace Jovanovich, New York, 1979.

Jones, Wilmer L., Mathematics For Today, Level Green and Orange, Dadlier-Oxford, New York, 1979.

Lyng, Merwin J., L. J. Meconi, and Earl J. Zwick, Career Mathematics: Industry and the Trades, Houghton Mifflin Co., Boston, 1974.

Nichols, Eugene D., Holt School Mathematics, Grade 7 and 8, Holt, Rinehart and Winston, Publishers, New York, 1978.

Price, Jack, Mathematics For Everyday Life, Charles E. Merrill Publishing Company, Columbus, Ohio, 1978.

Shulte, Albert P. and Robert E. Peterson, Preparing To Use Algebra, Laidlaw Brothers, River Forest, Illinois, 1975.

Travers, Kenneth J., Leroy C. Dalton, and Vincent F. Brunner, Using Algebra, Laidlaw Brothers, River Forest, Illinois, 1970, 1974.

CURRICULUM GUIDE

CLUSTER: Agri-business and Natural Resources

JOB FAMILY: Agronomist

SUBJECT AREA: Biology

NAME OF COURSE: Biology

NAME OF UNIT: Plants

TIME ALLOWED: Experiment done over a period of a few weeks. One class period to set it up and one class period to analyze it.

MAJOR IDEA: The students should write to a variety of places to learn about the career of Agronomy. (See an audio visual presentation)

OBJECTIVES: Have the student perform an experiment to determine the best soil mixture for growing radishes.

Have the student understand the occupation of Agronomist.

ACTIVITIES: SOIL MIXTURE EXPERIMENT

1. Purpose - To determine the best mixture of sand, soil and peat moss for growing radishes.
2. Materials - sand, potting soil, peat moss, pots, radish seeds, mixing stand, trowel, plant mobile with light on a timer.
3. Method -
    a) Each student makes one pot of the following soil mixture. Label each pot.
        A. sand only
        B. soil only
        C. peat moss only
        D. 1/3 of each
        E. 1/2 sand - 1/2 soil
        F. 1/2 sand - 1/2 peat moss
        G. 1/2 peat moss - 1/2 soil

    b) Place 2 radish seeds in each pot following directions on seed packet.

c) Water each pot with the same amount of water at the beginning and throughout the experiment.

d) Place the pots in trays on the plant mobile.

e) Record the growth of each plant - germination time; number, color and size of leaves; size of radish; length of time to harvest.

EVALUATION: 1. DATA

Pot	Germination Time	Number of Leaves	Color of Leaves	Size of Leaves	Size of Radish	Time to Harvest
A.						
B.						
C.						
D.						
E.						
F.						
G.						

QUESTIONS

2. Which soil type dried out first? Why?

3. Which soil type dried out last? Why?

4. Which soil type or combination grew the radishes best? Why?

5. Why would an agronomist do such an experiment?

6. What things other than soil analysis does an agronomist do?

7. Why would a farmer need an agronomist's advice?

8. Why would an agronomist need to be able to analyze soil types?

9. Why is agronomy so important to our future on earth?

10. Which additional high school courses could a person take to help prepare for a career as an agronomist?

11. What is the employment outlook for an agronomist?

12. Which industries or organizations would most likely offer employment opportunities for an agronomist?

13. Identify four colleges or universities that offer programs that help prepare persons for a career as an agronomist after graduation from high school.

RESOURCES: Materials for the Lab - Carolina Biological Supply Company and local nursery.

Books and Pamphlets on Agronomy:
Occupational Outlook Handbook; U.S. Department of Labor, Bureau of Labor Statistics.

For sale by the Superintendent of Documents; U.S. Government Printing Office, Washington, D.C. 20402, Cost 85¢.

Crop and Soil Sciences; College of Agriculture and Natural Resources, Michigan State University, East Lansing, Michigan.

Agronomist; Chronicle Guidance Publications, Inc. Morovia, New York 13118.

Opportunities in Crop Science, Soil Science and Urban Agronomy; University of Maryland, Department of Agronomy, College Park, Maryland 20742.

Careers in Soil Conservation Science; U.S. Department of Agriculture Soil Conservation Service, Office of Information, Washington, D.C. 20250, Cost 10¢.

Careers in Agronomy - Crop Science and Soil Science; American Society of Agronomy, 677 South Segol Road, Madison, Wisconsin 53711.

Audio-Visual References:
Film "Your Career in Agriculture;" Texaco, Inc., Manager Retail Sales, 864 West Peachtree Street, N.W., Atlanta, Georgia.

Films and Pamphlets covering every facet of agriculture and conservation, U.S. Department of Agriculture, Soil Conversation Service, 1380 Hamilton Street, Somerset, New Jersey 08873.

Slide Series, $13.00 with cassette "Careers in Resource Conservation; Soil Conservation Society of America, 7515 N.E. Ankeny Road, Ankeny, Iowa 50021.

CURRICULUM GUIDE

CLUSTER: Personal Services

JOB FAMILY: Cosmetology

SUBJECT AREA: Biology

NAME OF COURSE: Biology

NAME OF UNIT: Skin and Hair

TIME ALLOWED: One Class Period

MAJOR IDEA: Cosmetologists help their customers to look as attractive as possible. These workers, who are also known as beauty operators, hairdressers, or beauticians, shampoo, cut, set and style hair. They also straighten, bleach, tint and give permanent waves. Cosmetologists may give manicures and scalp and facial treatments, provide makeup analysis; shape eyebrows; and clean and style wigs and hair pieces. Their duties include making appointments with customers, cleaning equipment and sanitizing implements.
To learn more about the occupation of cosmetology write to various places for information.

OBJECTIVES: Have the student learn the structure of skin and hair.

Introduce the student to the occupation of cosmetology.

ACTIVITIES: SKIN AND HAIR
Read about shampoos, skin and hair structure and study the structure of skin from a model of scalp skin.

Draw and label a cross section of skin from a prepared microscope slide.

EVALUATION: 1. DRAWING - SKIN CROSS SECTION

2. What part of the hair is living?

3. How many outer layers of skin are dead in the scalp cross section?

4. Why wouldn't a barber or cosmetologist have to worry about a haircut being painful?

5. What is the purpose of the oil glands in the skin? Where are they located in relation to hairs?

6. If a person had very dry hair, how would you, as a cosmetologist advise them on care of their hair and skin?

7. Why is a pleasing personality important in this profession?

8. What is the difference between a synthetic detergent and a soap?

9. What is the purpose of conditioners? Why would a cosmetologist use them?

10. How much education is needed to be a cosmetologist?

11. After a person has completed cosmetology school, what must they do before they can work as a cosmetologist?

12. What additional high school courses could a person take to help prepare for a career as a cosmetologist?

13. What is the employment outlook for cosmetologists?

14. What are the employment and business opportunities that might be available to a person anticipating a career in cosmetology?

15. Identify four schools or institutes that help prepare persons for a career in cosmetology after graduation from high school.

RESOURCES: Occupational Outlook Handbook; U.S. Department of Labor.

Slides, Carolina Biological Supply Company.

Scalp Skin Model; Carolina Biological Supply Company; #56-7673.

Consumer Survival Kit; Follicle Fantasy, $1.00 each; Maryland Center for Public Broadcasting, P.O. Box 1977, Qwings Mills, Maryland 21117.

Consumer Survival Kit; Skin Care, $1.00 each.

Textbooks:
Biological Science - An Inquiry into Life; BSCS Yellow, Harcourt, Brace and World.

Biology - An Inquiry into the Nature of Life; Weinberg; Allyn and Bacon.

The Science of Biology; Weisz; McGraw-Hill.

Cosmetologist Pamphlets:
Cosmetologist; Chronicle Guidance Publications, Inc. Moravia, New York 13118, Cost 50¢.

Cosmetologist; Careers, P.O. Box 135, Largo Florida 33540.

Cosmetology as a Career; National Hairdressers and Cosmetologists Association, Inc., 3510 Olive Street, St. Louis, MO 63103.

Hairdressing and Cosmetology; National Beauty Career Center, 3839 White Plains Road, Bronx, New York 10467.

Cosmetologist; Mississippi Employment Security Commission, P.O. Box 1699, Jackson, Mississippi 39205.

Hairdressers and Cosmetologists Association, 175 Fifth Avenue, New York, NY 10010.

CURRICULUM GUIDE

CLUSTER: Health

JOB FAMILY: Dental Hygienist

SUBJECT AREA: Biology

NAME OF COURSE: Biology

NAME OF UNIT: Digestive System - care of the teeth

TIME ALLOWED: One class period and homework

OBJECTIVES: Have the student listen to a dental hygienist talk about their profession and to let the students ask questions about the profession.

ACTIVITIES: Have a dental hygienist come as a guest speaker, and question and answer period.

EVALUATION:

1. Have the students write a reason why they would or would not be interested in dental hygiene as a career.
2. Which additional high school courses could a person take to help prepare for a career as a dental hygienist?
3. What is the employment outlook for dental hygienists?
4. What are some of the possible places of employment for a dental hygienist?
5. Identify four schools or institutes that offer programs to help persons prepare for a career as a dental hygienist after graduation from high school.

RESOURCES: A dental hygienist could be contacted through:

A dentist in the town,
A former student who is a dental hygienist,
School of Dental Hygiene - University or
Community College offering a program in dental
hygiene.

CURRICULUM GUIDE

CLUSTER: Health

JOB FAMILY: Dental Hygienist

SUBJECT AREA: Biology

NAME OF COURSE: Biology

NAME OF UNIT: Digestive System - Care of the Teeth

TIME ALLOWED: One class period or homework

OBJECTIVES: Have the student learn the causes and prevention of tooth decay.

Understand the role of a dental hygienist.

Relate this profession to the knowledge of tooth decay.

ACTIVITIES: Look up the nature of work of a dental hygienist. Look up the causes of caries (cavities) and the prevention of them.

EVALUATION:

1. What variety of things does a dental hygienist do?
2. How much education is needed to be a dental hygienist?
3. a) What is plaque?

   b) What should people do to prevent its buildup?

   c) Why would a dental hygienist need to know this information?
4. What causes caries?
5. How would a dental hygienist help patients prevent caries?

6. How does a dental hygienist help the dentist?

7. Why would a dental hygienist recommend fluoride vitamins for young children if the water in the town is not fluoridated?

8. Which additional high school courses could a person take to help prepare for a career as a dental hygienist?

9. What is the employment outlook for dental hygienists?

10. What are some of the possible places of employment for a dental hygienist?

11. Identify four schools or institutes that offer programs to help persons prepare for a career as a dental hygienist.

RESOURCES:

Consumer Survival Kit Publications, #205 Dental Care; P.O. Box 1977, Owings Mills, Maryland 21117, Cost $1.00.

Biological Science - An Inquiry into Life, BSCS Yellow Version; Harcourt, Brace and World.

Biology - An Inquiry into the Nature of Life; Weinburg, Allyn and Bacon.

Occupational Outlook Handbook; U.S. Department of Labor, Bureau of Labor Statistics.

Career Information Center/7 Health; Butterick Publications.

Pamphlet:
Careers in Dental Hygiene; American Dental Hygienists' Association, Division of Educational Services, 211 East Chicago Avenue, Chicago, Illinois 60611.

Film:
S-237 *Take Time for Your Teeth*; 16mm color sound, 12 minutes; Association Films, Inc., 600 Madison Avenue, New York, New York 10022.

CURRICULUM GUIDE

CLUSTER: Health

JOB FAMILY:
Dental Hygienist
Dental Assistant
Dental Lab Technician

SUBJECT AREA: Biology

NAME OF COURSE: Biology

NAME OF UNIT: Digestive System - Care of the Teeth

TIME ALLOWED: One class period and homework

OBJECTIVES: Have the student recognize the similarities and differences between the three related professions: dental hygienist, dental assistant and dental lab technician.

ACTIVITIES: Have the students see audiovisual materials on the three careers and write to various places for information on these careers.

EVALUATION:

1. Each student is to write a brief summary of each career and list the similarities and differences between the three careers.
2. Which additional high school courses could a person take to help prepare for a career as a dental hygienist, dental assistant, or a dental laboratory technician?
3. What is the employment outlook for persons considering careers as dental hygienists, dental assistants, or dental laboratory technicians?
4. What are some of the employment or business opportunities available to persons considering careers as dental hygienists, dental assistants, or dental laboratory technicians?
5. Identify four schools or institutes that offer programs to help persons prepare for a career as a dental hygienist, dental assistant, or dental laboratory technician after graduation from high school.

RESOURCES:

Audiovisual Filmloops:
Produced by Job Opportunity Series; Dental Hygienist Dental Lab Technician, and Dental Assistants.

Pamphlets:
Dental Assisting; American Dental Assistants Association, Room 1230, 211 East Chicago Avenue, Chicago, Illinois 60611.

Careers in Dental Hygiene: American Dental Hygienists' Association; 211 East Chicago Avenue, Chicago, Illinois 60611.

Dental Assistant; Careers, Inc., Largo, Florida 33540, price 20¢.

Dental Assistant, Hygienist, Laboratory Technician; Health Careers Program; P.O. Box 4387; Madison, Wisconsin 53711.

Dental Laboratory Technician; The Philadelphia Center for Health Careers; 311 South Juniper Street; Philadelphia, Penna. 19107.

Hands that Think: A Word About Careers in Modern Dental Laboratory Technology; National Association of Dental Laboratories, 3801 Mt. Vernon Avenue, Alexandria, Virginia 22305.

CURRICULUM GUIDE

CLUSTER: Health

JOB FAMILY: Dietitian

SUBJECT AREA: Biology

NAME OF COURSE: Biology

NAME OF UNIT: Nutrition

TIME ALLOWED: One class period

MAJOR IDEA: A dietitian has many roles. A dietitian plans nutritious and appetizing meals to help people maintain or recover good health. They also supervise the food service workers who prepare and serve the meals, manage purchases and keep the accounts, and give advice on good eating habits.

Dietitians work in many places such as school cafeterias, public restaurants, hospitals. They may teach in colleges or do research. Many are employed in hospitals, which is where you are employed. In addition to planning nutritious, well balanced meals dietitians may be called on to plan special meals for a person with a specific problem. Write to a variety of places to find out more about the occupation of dietitian.

OBJECTIVES: Have the student choose foods high in protein for a person with a protein deficiency disease that has been admitted to a hospital where the student is a dietitian.

Have the student begin to understand the occupation of dietitian.

ACTIVITIES:

1. Discuss the occupation of a dietitian with the class. Have one student look up the job prospects, salary, etc., and report to the class.
2. Hand out the following exercise for the students to work on, either in class or for homework.

A. PROBLEM

Today you have to plan a meal. A doctor tells you a person with kwashiorkor (kwash-e'-or'ker) has been admitted. You know this is a disease of protein malnutrition. It is mostly found in infants and children. Your patient is 3 years old. He has anemia, general wasting and growth retardation. You know this disease can be reversed by giving high-quality protein. A healthy diet of age 3 should have 25 to 30 grams of high-quality (animal) protein per day. This child should get more than this since he is deficient to begin with. You calculate 40 grams per day. Remember that a 3 year old does not eat adult proportions. These charts are adult portions. Some of these serving sizes would be too large for a 3 year old. For example, tuna at 13.5 grams would be calculated at 6 or 7 grams. A 3 year old could eat one egg so calculate this at 6.5 grams. If you think the portion is too big, cut it in half.

B. SOLUTION

Select from the list of protein foods and plan a 3 day diet. Two fruits, two vegetables, whole wheat bread and a source of starch such as pasta or potatoes is also being given. You have to calculate only the protein source. The vegetables listed are the ones with the highest protein content. As a dietitian, you might include vegetables for their vitamin and mineral content. In this exercise calculate only the protein intake. Remember what a 3 year old might like.

Food	Approximate Measure	Protein in Grams
Dairy		
Cheese, cheddar	1 cubic inch	7.5
Cheese, cottage	1/2 cup	19.5
Custard	1/2 cup	7.0
Egg	1 medium	6.5
Ice Cream	1/2 cup	7.0
Milk, whole	1 cup	8.0
Milk, skim	1 cup	9.0
Fish		
Cod, haddock, tuna	1 medium adult serving	13.5
Salmon, canned	"	15.0
Meat		
Beef, lamb, or veal	1 medium adult serving	19.0
Fowl	"	15.0
Liver	"	14.0
Luncheon meats	two slices or 1/2 frankfurter	6.0

Miscellaneous - not animal source - lower quality protein - calculate only 70% of the protein grams listed. These must be consumed with an animal source in order to count at all.

Graham crackers	2	2.5
Peanut Butter	1 tbsp.	4.0
Soybeans	1/2 cup cooked	10.5
Peanuts	16	4.0
Pancake	1	2.5
Cereal	1/2 cup	2.5
Bread	1 slice	2.5
Banana	1 medium	1.3
Peas, Beans	1/2 cup cooked	6.5
Corn	1/2 cup cooked	3.0
Broccoli	1/2 cup cooked	4.0
Potato	1/2 large	2.0

EVALUATION: 1. CHART

Day 1 ______________ Food ______________ Grams of Protein ______

Breakfast ____

Lunch ____

Dinner ____

Total Grams

Day 2 ____

Breakfast ____

Lunch ____

Dinner ____

Total Grams

Day 3 ____

Breakfast ____

Lunch ____

Dinner ____

Total Grams

2. Ounce for ounce, which has a higher protein content, whole or skim milk?

3. What are the best sources of protein?

4. A dietitian has a limited amount of time. Why would one have to be familiar with tables?

5. Why would a dietitian have to take courses in how to budget money?

6. Why would a dietitian have to work well with others?

7. Even though you are concerned here only with protein, why would this child's diet need to be complete in other ways?

8. Which additional high school courses could a person take to help prepare for a career as a dietitian?

9. What is the employment outlook for dietitians?

10. Which are some of the industires and institutions that would offer employment for dietitians?

11. Identify four colleges or universities that offer programs to help persons prepare for a career as a dietitian.

RESOURCES: The Science of Nutrition; Marian Arlin; Macmillan Publishing Co., Inc.

Pamphlets:
Dietitian, Nutritionist, Food Service Supervisor; Minnesota Health Careers Council; Project Breakthrough, 2414 7th Street South, Minneapolis, Minnesota 55406.

Chart your course Toward Dietetics, Dietetics as a Profession; Be a Dietitian, Careers in Dietetics; Dietetics - How Sweet It Is; American Dietetic Association, 620 North Michigan Avenue, Chicago, Illinois 60611.

Dietitian; Chronicle Guidance Publications, Inc. Moravia, New York 13118.

CURRICULUM GUIDE

CLUSTER: Health

JOB FAMILY: Electrocardiograph Technician

SUBJECT AREA: Biology

NAME OF COURSE: Biology

NAME OF UNIT: Circulatory System

TIME ALLOWED: One class period

OBJECTIVES: To have the student review the anatomy of the heart.

To have the student learn the EKG.

To have the student become familiar with the occupation of electrocardiograph technician.

ACTIVITIES:

A. INTRODUCTION
Each student should locate as much information as possible about the occupation of electrocardiograph technician.

B. HEART MODEL
Examine the plastic model of the heart and the surrounding blood vessels. Answer the questions in the evaluation section.

C. EKG
Read about an EKG. Draw and label a standard EKG using the textbook as a guide. Tell what the three parts of the EKG stand for.

EVALUATION:

1. How much training does an EKG technician need?

2. What are the duties of an EKG technician?

3. Locate number 42 in the human body model. What vessel is it?

4. #43 is the __________ vein. This will join the __________ which returns blood to the heart.

5. #45 is the __________. #50 is the __________. Both of these return blood to the heart. Is this oxygenated or deoxygenated blood?

6. What is #49? __________

7. #51 is a __________. What is its function?

8. #54 is the __________

9. #55 is the __________. What organ does this carry blood to? What happens to the blood in this organ?

10. #59 and 60 are the ____________________. They return blood to #58. What is #58? __________

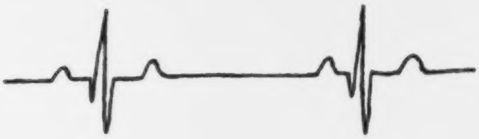
11. #63 is the __________. What is its function?

12. #67 is the __________ and #63 is the __________.

13. What is the function of the right side of the heart?

14. What is the function of the left side of the heart?

15. Drawing of an EKG. Label the three waves.



16. What do each of these parts represent

    P-
    QRS
    T-

17. What is an EKG a record of?

18. Why would an electrocardiograph technician need to know the information in questions 15 and 16?

19. Which additional high school courses could a person take to prepare for a career as an electrocardiograph technician?

20. What is the employment outlook for an electrocardiograph technicians?

21. Which are some of the practices and institutions that would offer employment to electrocardiographic technicians?

22. Identify four schools or institutions that offer programs to help persons prepare for a career as an electrocardiograph technician.

RESOURCES: Human Body; Nystrom Biological Model Co.

Textbooks:
Medical Physiology; A. Guyton.

Function of the Human Body; A. Guyton.

Career Information Center/7 Health; Butterick Publications.

ENCYCLOPEDIA OF CAREERS; School Library

X-Ray, EEG, EKG Technician; Minnesota Health Careers Council, Project Breakthrough, 2414 7th Street South, Minneapolis, Minnesota 55406.

CURRICULUM GUIDE

CLUSTER: Agri-business and Natural Resources

JOB FAMILY: Fisheries and Wildlife

SUBJECT AREA: Biology

NAME OF COURSE: Biology

NAME OF UNIT: Ecology

TIME ALLOWED: One class period

MAJOR IDEA: "Throughout history man has harvested fish and wildlife, enhanced by a growing awareness of the relationships of these species to the environment, to each other, and to himself. With knowledge also came appreciation for the beauty of wild things, and recognition of man's responsibility for helping to ensure their right to exist.

People in Fisheries and Wildlife are employed by public agencies like the Fish and Wildlife Service, Forest Service, National Park Service, Bureau of Land Management, Bureau of Outdoor Recreation, and Soil Conservation Service at the federal level. Employment also is available in various state fish and wildlife departments. Increasing private employment is found in environmental consulting firms, municipal planning agencies, health or recreation departments, hunting and fishing clubs, public utilities, museums, nature centers, zoos, camps, fish hatcheries, game farms, fish or game products firms, and a variety of conservation organizations.

Job descriptions range from hatitat analysis and management, land-use planning and reclamation, pollution monitoring and control, information education specialties, and preparation of environmental impact statements to refuge management, fish culture, population dynamics, law enforcement, and many more.

It is important for Fisheries and Wildlife people to develop good communication skills, realizing that a large percentage of their work will involve public contact. Along these lines, it is equally important for the candidate to like people and to be able to work well with and be tolerant of persons of differing viewpoints and prejudicies."

OBJECTIVES: Introduce the student to basic ecological principles such as trophic levels, hydrological cycle and pesticide uses.

Have the student become familiar with the occupation of Fisheries and Wildlife Management.

ACTIVITIES: The Effects of Pesticides that get into our streams. Each student should read the ecology section in a basic biology book.

EVALUATION:

1. What is an energy pyramid?
2. How much is a pesticide concentrated at each level of the pyramid?
3. How do pesticides get into our streams?
4. In the hydrological cycle, where do all pesticides end up?
5. What is meant by a biodegradable pesticide? Why would these be good to use?
6. Why are pesticides necessary?
7. Why would a person in fisheries and wildlife need to be knowledgable in the different pesticides?
8. Why would a fisheries and wildlife person have to be a good speaker?
9. Why would a fisheries and wildlife person need to be open minded and willing to listen to others' points of view?

10. Which additional high school courses could a person take to help prepare for a career in fisheries or wildlife?

11. What is the employment outlook for persons anticipating careers in fisheries or wildlife?

12. Which industries or organizations would most likely offer employment for persons interested in careers in fisheries or wildlife?

13. Identify four colleges or universities that offer programs to prepare persons for careers in fisheries and wildlife.

RESOURCES:

Ecology and Your Career; Occupational Outlook Service, U.S. Department of Labor, Bureau of Labor Statistics, Washington, D.C. 20212.

Your Career in Ecology; Ecological Society of America, Department of Biology, Rutgers University, Camden, New Jersey 08182.

Fisheries and Wildlife; Michigan State University, College of Agriculture and Natural Resources, East Lansing, Michigan.

Fisheries as a Profession; American Fisheries Society, 1319 Eighteenth Street NW, Fourth Floor Suite, Washington D.C. 20036, 25¢.

Wildlife Managers; Science Research Associates, 259 East Erie Street, Chicago, Illinois 60611, 55¢.

Conservation Biologist: Fisheries Biology and Wildlife Biology; New York Department of Environmental Services, Division of Educational Services, Albany, New York 12201.

Preparation for a Career in Fish Conservation; Preparation for a Career in Wildlife Conservation; Department of the Interior, Bureau of Sport Fisheries and Wildlife, Washington, D.C. 20240.

Careers in Water Pollution Control; Water Pollution Control Federation, 3900 Wisconsin Avenue, N.W., Washington, D.C. 20016.

Books:

Fundamentals of Biology; Adum, Eugene P., W.B. Saunders Company.

Biological Science - An Ecological Approach; BSCS Green Version, Rand McNally.

Biology - An Inquiry into the Nature of Life; Weinburg, Allyn and Bacon.

CURRICULUM GUIDE

CLUSTER: Agri-business and Natural Resources

JOB FAMILY: Horticulturist

SUBJECT AREA: Biology

NAME OF COURSE: Biology

NAME OF UNIT: Plant Reproduction

TIME ALLOWED: One class period

MAJOR IDEA: Are you interested in living plants or in products obtained from them, or in improving man's environment through the use of plants? Does growing fruits, vegetables, flowers, or landscape plants appeal to you? If the prospect of doing any of these sounds exciting, you might consider a career in horticulture.

To find out more about the occupation of horticulture write to various places for information. Read in your textbook about flower structure and reproduction.

OBJECTIVES: Have the student understand the structure of a flower and plant reproduction.

Have the student begin to understand the occupation of horticulturist.

ACTIVITIES: LABORATORY DRAWING
Using a fresh daffodil or tulip, or a chart or model draw and label a flower. Label the following: pistil, stigma, style, ovary, stamen, anther, filament, petals, sepals.

EVALUATION: 1. DRAWING

2. Where is pollen produced?

3. Where is the egg found? The polar nuclei?

4. Where are the sperm nuclei found?

5. How do the sperm nuclei reach the egg?

6. What is the difference between cross pollination and self pollination?

7. Explain double fertilization.

8. You are a horticulturist and you want to cross 2 types of petunias to try to produce a new strain. How would you cross them?

9. Why would the Burpee Seed Company hire horticulturists?

10. Why would a magazine like Better Homes and Gardens hire a horticulturist?

11. What would a horticulturist do for an owner of a large orchard?

12. How much education does a person need to become a horticulturist?

13. Which additional high school courses could a person take to help prepare for a career as a horticulturist?

14. What is the employment outlook for horticulturists?

15. Which are some of the industries and organizations that would offer employment to horticulturists?

16. Identify four colleges or universities that offer programs to prepare persons for a career as a horticulturist.

Take a field trip to botanical garden in your area to see the type of work a horticulturist does?

RESOURCES: Chart or model of a flower; Carolina Biological Supply Company.

Textbooks: .
Biological Science - An Inquiry into Life, BSCS Yellow; Harcourt, Brace and World.

Biology - An Inquiry into the Nature of Life; Weinberg; Allyn and Bacon.

The Science of Biology; Weisz; McGraw-Hill.

Horticulturist; Occupational Outlook Handbook; U.S. Department of Labor, Bureau of Labor Statistics.

Horticulture; Michigan State University, College of Agriculture and Natural Resources, East Lansing, Michigan.

Horticulture, Nurseryman; Chronicle Guidance Publications, Inc., Moravia, New York 13118, 50¢, 35¢.

Horticulture Therapy Aid; National Council for Therapy and Rehabilitation through Horticulture, Mt. Vernon, Va. 22121.

Horticulture - A Rewarding Career, Careers in Horticulture, Horticulture: A Satisfying Profession; American Society of Horticulture Science, P.O. Box 109, St. Joseph, Michigan 49085.

Assistant Tree Trimmer; Fearon Publishers, 6 Davis Street, Belmont, CA 94002, 94¢.

Careers in Horticultural Science; Dowdell, Dorothy and Joseph, $6.29.

Careers in the Floral Industry; Society of American Florists, 901 N. Washington Street, Alexandria, Va. 22314.

American Horticultural Society; 1600 Blandburg, Washington, D.C.

CURRICULUM GUIDE

CLUSTER: Health

JOB FAMILY: Medical Illustrator

SUBJECT AREA: Biology

NAME OF COURSE: Biology

NAME OF UNIT: Cell Division - Mitosis

TIME ALLOWED: Two class periods

MAJOR IDEA: Medical illustrators are artists who work in the field of medicine. They often make detailed drawings for textbooks and medical journals that are used by physicians and medical students. Some make graphs or charts for research projects. Medical illustrators also build models of parts of the human body for use in lectures or seminars. They sometimes illustrate the steps that a surgeon uses during an operation or they show new ways of operating. They also draw pictures of normal and diseased body conditions. Some medical illustrators help to prepare television programs and films. In some cases they help to create artificial parts, such as ears or eyes, for patients who need them. Some medical illustrators are employed by publishers of medical textbooks. Others work for magazine publishers that produce scientific journals. Many are staff members of universities, hospitals and research institutions. These medical illustrators sometimes teach as well as do illustrations. A few work for museums, drug companies and commercial art studios. Some medical illustrators work as freelance artists; that is, they are self-employed and receive a fee for each project that they complete. The student should write to a variety of places to obtain more information on medical illustrator. The student should review the purpose and 5 stages of mitosis in their textbooks.

OBJECTIVES: Have the student learn the purpose and the 5 stages of animal mitosis.

Have the student draw and label the 5 stages of mitosis using slides of whitefish blastula as they would be drawn in a textbook by a medical illustrator.

Have the student begin to understand the abilities and characteristics of the occupation medical illustrator.

ACTIVITIES: A. LABORATORY DRAWING EXERCISE

1. Using a prepared slide of whitefish blastula cells, focus on one typical interphase cell.

2. Draw one interphase cell. Make sure your drawing is accurate and neat.

3. Label the following on your interphase cell - cell membrane, cytoplasm, nucleus and nucleolus (if seen).

4. Repeat the first two steps using typical prophase, metaphase, anaphase, and telophase cells. Label - chromatids, spindle fibers, asters and centrioles.

B. Locate drawings of animal cell mitosis in a textbook and compare to your drawings.

EVALUATION: 1. DRAWINGS

Interphase Prophase Metaphase Anaphase Telephase

2. A person is going to use your drawings for a medical textbook. Why would the cells you draw need to be typical cells?

3. Why does a medical illustrator need to be a meticulous person?

4. What college training would a medical illustrator need?

5. Who would hire a medical illustrator?

6. What is the purpose of mitosis?

7. What would be the purpose of these drawings in a medical textbook?

8. After comparing your drawings to those in a textbook, state how your drawings could be improved.

9. Does the occupation of medical illistrator appeal to you? Explain your answer.

10. Which additional high school courses could a person take to help prepare for a career as a medical illustrator?

11. What is the employment outlook for medical illustrators?

12. Which are some of the companies or institutions that would offer employment for medical illustrators?

13. Identify four schools or colleges that offer programs to prepare persons for a career as a medical illustrator.

RESOURCES:

1. Pamphlets and books with information on medical illustration:

   Career Information Center/7 Health; Butterick Publishing; pp. 83-84.

   Medical Illustrator; Association of Medical Illustrators, 6650 Northwest Highway, Chicago, Illinois 60631.

   Medical Illustrator; Chronicle Guidance Publications, Inc., Moravia, New York 13118; 35¢.

   Medical Illustrator, Medical Photographer; Virginia Health Careers, Virginia Council on Health and Medical Care, P.O. Box 12363, Central Station, Richmond, Virginia 23241.

   Medical Illustrator (one of 37 Health Career Pamphlets - $2.00); Park Publishing House, 516 Viewridge Drive, Angwin, CA 94508.

2. Slides for the Lab:

   Carolina Biological Supply Co.

3. Textbooks for Information and Drawings of Mitosis:

Biological Science - An Inquiry into Life, BSCS Yellow; Harcourt, Brace and World.

Biology - An Inquiry into the Nature of Life; Weinburg; Allyn and Bacon.

The Science of Biology; Weisz, Paul B.; McGraw-Hill.

CURRICULUM GUIDE

CLUSTER: Health

JOB FAMILY: Nutritional Biochemist

SUBJECT AREA: Biology

NAME OF COURSE: Biology

NAME OF UNIT: Nutrition

TIME ALLOWED: Two class periods

MAJOR IDEA: The chemical composition of foods must be accurately known for a variety of reasons. In order to maintain health the proper nutrients must be consumed in the proper amounts. Therefore, the composition of foods must be known in order to select a balanced diet. Secondly, if a person is deficient in one or more nutrients or is recovering from an illness where more nutrients of a particular type are needed, the specific foods with high quantities of the needed nutrients must be known. Biochemists study the chemical composition and chemical reactions within living organisms. A nutritional biochemist is specifically concerned with identifying the nutrients in food necessary to maintain good health. This information may then be used by clinical nutritionists and dieticians.

OBJECTIVES: Have the student estimate the quantity of Vitamin C in a variety of fresh juices using the methods of a nutritional biochemist.

Have the student begin to understand the role of a nutritional biochemist.

ACTIVITIES: EXPERIMENT - ESTIMATING THE QUANTITY OF VITAMIN C IN FRUIT AND VEGETABLE JUICES

1. Purpose - To determine and evaluate the content of vitamin C in 4 juices using the techniques of a nutritional biochemist.

2. Materials - Stoppered bottles containing a variety of juices - ie. orange, cabbage, celery, apple, carrot, etc. The juices should be prepared just prior to the lab. They may be obtained by squeezing the fruit or liquefying the food in a blender and filtering through cheesecloth. Do not dilute with water. Keep exposure to air to a minimum. Fresh juices may be compared to canned or frozen for their vitamin C content.

   1.0% indophenol solution
   0.1 and 0.5% solutions of ascorbic acid
   test tubes, rack and holder
   medicine droppers
   wax pencil
   blender
   cheesecloth
   fruit to extract juice from, canned and frozen juices

3. Method:
   1. Place 15 drops of 0.1% indophenol solution in a test tube (blue color).

   2. Add 0.1% ascorbic acid one drop at a time and shake after each drop until the indophenol is decolorized.

   3. Record the number of drops on the data section of the evaluation sheet.

   4. Repeat steps 1, 2 and 3 using 0.5% ascorbic acid.

   5. Repeat steps 1, 2 and 3 using the 4 juices.

EVALUATION: 1. DATA

# of drops

0.1% ascorbic acid

0.5% ascorbic acid

Juice #1 __________

Juice #2 __________

Juice #3 __________

Juice #4 __________

2. a) Did it take more or less 0.05% ascorbic acid to decolorize the indophenol compared to the 0.1% ascorbic acid?

   b) Why?

3. Using the 0.1 and 0.05% ascorbic acid solutions as controls, estimate the relative quantities of ascorbic acid in each of the 4 fresh juices. Rate each one and fill in the chart.

Rating

#1____________

#2____________

#3____________

#4____________

0 - no vitamin C
+ - slight amount
++ = moderate amount
+++ - great amount

4. How does this lab relate to the role of a nutritional biochemist?

5. Why would a nutritional biochemist have to be a meticulous person?

6. Of what value would the findings of a nutritional biochemist be?

7. Who might use these findings?

8. Which additional high school courses could a person take to help prepare for a career as a nutritional biologist?

9. What is the employment outlook for a nutritional biologist?

10. Which industries or organizations would most likely offer employment for nutritional biologists?

11. Identify four colleges or universities that offer programs to prepare persons for a career as a nutritional biologist.

RESOURCES: *Biology Investigations*; Haskel/Sygoda; Amsco School Publications, Inc.

Laboratory Supplies; Carolona Biological Supply Company.

American Society of Biological Chemists, 9656 Wisconsin Avenue, Washington, D.C. 20014.

Pamphlets:
Biochemist; Chronical Guidance Publication, Inc.; Moravia, New York 13118, Cost 35¢.

Careers in Biochemistry; American Society of Biological Chemists, Inc.; Educational Affairs Committee, 9650 Rockville Pike, Bethesda, Maryland 20014.

Careers in Nutrition; American Institute of Nutrition; Rockville Pike, Bethesda, Maryland 20014.

CURRICULUM GUIDE

CLUSTER: Health

JOB FAMILY: Nutritionist

SUBJECT AREA: Biology

NAME OF COURSE: Biology

NAME OF UNIT: Nutrition

TIME ALLOWED: One class period or homework

MAJOR IDEA: A nutritionist examines the bodily processes through which food is utilized and transformed into energy. They learn how vitamins, minerals, proteins and other nutrients build, maintain and repair tissues in living organisms. The student should obtain as much information as possible about the occupation of nutritionist.

OBJECTIVES: Have the student interpret hypothetical data from an experiment testing the effects of vitamin D in laboratory rats.

Determine the minimum vitamin D needed, the effects of vitamin D deficiency and recommended daily allowance.

Relate these exercises to the role of a nutritionist and to understand the occupation of nutritionist.

ACTIVITIES: A. PRELIMINARY INFORMATION

A disease called rickets was thought to be due to a faulty environment, especially lack of sunshine. During the rapid industrialization of the 19th century, rickets became a severe problem of children in cities. One third of the children of poor families in cities like London had rickets by 1870. Rickets can be most easily identified by the bowed legs of the children with the disease. Flattened skulls and abnormally curved spines are other symptoms. Lack of vitamin D causes the calcium in the diet not to be absorbed from the intestines into the blood. Thus a low blood calcium level can be accurately used to determine the degree of vitamin D deficiency. Since bone development is dependent on blood calcium levels a low blood calcium level precedes the symptom of rickets.

Vitamin D can be formed in the skin when exposed to the ultraviolet radiation of the sun. Therefore, even if the diet is deficient in vitamin D, it can be obtained if the young person is exposed to the sunshine.

Since humans should not be used for vitamin deficiency experiments, laboratory rats or other anumals are used. Here is an hypothetical experiment a nutritionist might conduct and the resulting data.

B. EXERCISE

1. Purpose - To determine the effects of vitamin D deficiency and the amount of vitamin D necessary to counteract the deficiency, following the experimental procedures of a nutritionist.

2. Experiment - Groups of rats (25/group) were given an identical balanced diet. The only difference was the vitamin D content of the food. This experiment was conducted on baby laboratory rats as soon as they started eating solid food.

   1 IU (International Unit) = 0.025 mcg (micrograms) of vitamin D

Group	Amount of Vitamin D in IU
1	0
2	2
3	4
4	6
5	8
6	10
7	20
8	30

3. Data:

Group	Symptoms	Calcium in Blood
1	5 days-soft bones rickets	very low
2	12 days-soft bones rickets	very low
3	14 days-slight softening of bones	low
4	no softening	slightly below normal

Group	Symptoms	Calcium in Blood
5	no softening	normal
6	no softening	normal
7	no softening	elevated
8	7 days - loss of appetite, vomiting, diarrhea, drowsiness, calcium deposits in soft tissues	very high

EVALUATION: If you were the nutritionist doing this experiment, you would have to draw the following conclusions: Answer the following questions based on your knowledge and the data from this experiment:

1. Does vitamin D deficiency affect bone strength to cause rickets?

2. Is the amount of vitamin D related to the severty of the disease? How do you know it is related?

3. a) What symptom, other than rickets, may be used to detect vitamin D deficiency?

   b) Why is this symptom a better one to use than the visual observation of rickets?

4. What would you set as the minimum daily requirement of vitamin D for very young rats? __________ Why?

5. a) What would you set as the recommended daily allowance for vitamin D in young rats? __________ Why?

   b) Why would a recommended daily allowance of a nutrient be more than a minimum daily requirement?

6. Why would too much vitamin D be bad?

7. What would you set as the upper limit of vitamin D intake in young rats?__________ Why?

8. As a nutritionist setting up this experiment, why is it necessary for you to give the young rats a balanced diet except for the vitamin D content?

9. Observations of human populations showing rickets and analysis of their vitamin D intake have allowed nutritionists to set the following vitamin D limits:

   For infants, children, adolescents, pregnant and lactating (milk producing) mothers -

   minimum daily requirements - 100 IU

   recommended daily requirements - 400 IU

   excessive vitamin D causing calcium deposits for infants was found to be 2000-3000 IU.

   a) Requirements for adults have not been established. Why are requirements for adults not necessary?

   b) Why would pregnant and lactating mothers need vitamin D?

   c) Why would children living in cities with air pollution be more prone to rickets?

10. Which additional high school courses could a person take to help prepare for a career as a nutritionist?

11. What is the employment outlook for nutritionists?

12. Which industries or organizations would most likely offer employment for nutritionists?

13. Identify four colleges or universities that offer programs to prepare persons for a career as a nutritionist.

RESOURCES:

Occupational Outlook Handbook; U.S. Department of Labor.

Nutrition; (same book as cited in dietitian report).

DIETITIAN, Nutritionist, Food Service Supervisor; Minnesota Health Careers Council; Project Breakthrough, 2414 7th Street South, Minneapolis, Minnesota 55406.

Careers in Nutrition; American Institute of Nutrition, Rockville Pike, Bethesda, Maryland 20014.

Consumer Survival Kit - Food; P.O. Box 1977, Owings Mills, Maryland 21117.

Nutritionist; Chronicle Guidance Publications, Inc. Moravia, New York 13118.

CURRICULUM GUIDE

CLUSTER: Health

JOB FAMILY: Optical Laboratory Mechanic, Optometrist, Optician

SUBJECT AREA: Biology

NAME OF COURSE: Biology

NAME OF UNIT: Human Eye

TIME ALLOWED: One class period or homework

OBJECTIVES: Have the student research the three occupations and to be able to distinguish between each.

ACTIVITIES: One student should research each occupation and present all the facts of that occupation to the class.

EVALUATION: Each student in the class will list the similarities and differences between the three occupations and answer the following questions:

1. Who is responsible for examining your eyes?
2. To whom do you go to have a pair of glasses made?
3. Who would fit you for contact lenses?
4. Who would make the glasses or contact lenses?
5. Which additional high school courses could a person take to help prepare for a career as an optical laboratory mechanic, optometrist, or optician?
6. What is the employment for optical laboratory mechanics, optometrists, and opticians?
7. Which are the companies and institutions that would most likely offer employment to optical laboratory technicians, optometrists, and opticians?
8. Identify four schools, colleges, universities, or institutes that offer programs to prepare persons to become optical laboratory mechanics, optometrists, or opticians.

RESOURCES:

Optician; Chronicle Guidance Publications, Inc., Morovia, New York 13118, 50¢ each.

Optometrist; Chronicle Guidance Publications, Inc., Morovia, New York 13118, 50¢ each.

Optician; Careers, P.O. Box 135, Largo, Florida 33540, 30¢ each.

Optometrist; Careers, P.O. Box 135, Largo, Florida 33540, 30¢ each

Optical Mechanics; Science Research Associates, 259 East Erie Street, Chicago, Illinois 60611, 55¢ each.

Optometric Technician Information Sheet; American Optometric Association, 7000 Chippewa Street, St. Louis, Mo. 63119.

Health Careers Guidebook, U.S. Department of Labor, Manpower Administration, $2.25.

Occupational Outlook Handbook; U.S. Department of Labor, Bureau of Labor Statistics.

Career Information Center/7 Health; Butterick Publications.

Filmloops:
Optometrist, Dispensing Optician, Optical Lab Mechanics; Job Opportunity Series.

CURRICULUM GUIDE

CLUSTER: Health

JOB FAMILY: Optometrist

SUBJECT AREA: Biology

NAME OF COURSE: Biology

NAME OF UNIT: Human Eye

TIME ALLOWED: One class period or homework

OBJECTIVES: Have the student learn the structure and function of the human eye.

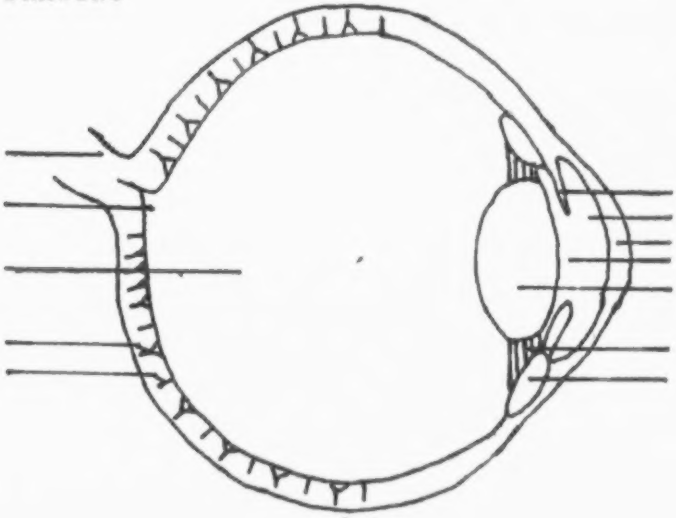
Have the student begin to learn about the occupation of optometrist.

ACTIVITIES:

A. INTRODUCTION
The student should learn as much as possible about the occupation of optometrist through audio-visual and writing to various places for information.

B. Using the chart of the human eye label this diagram of the human eye. Include the following terms: cornea, iris, pupil, lens, ciliary muscle, retina (rods and cones) blind spot, optic nerve, aqueous humor, suspensory ligaments, vitreous body.

EVALUATION: 1. DRAWING



1. When an optometrist looks into your pupil, what part of the eye is s/he looking at?
2. If your optometrist found a problem that needed drugs or surgery, what type of doctor would s/he refer you to?
3. Why should an optometrist need training in optics (the study of how light rays are bent by lenses)?
4. What is the function of the following? iris, lens, retina, optic nerve.
5. What is the cause of nearsightedness? What type of lens corrects it?
6. What is farsightedness? What type of lens corrects it?
7. How much education does an optometrist need beyond a 4 year college degree?
8. What types of things does an optometrist do?
9. Which additional high school courses could a person take to help prepare for a career as an optometrist?
10. What is the employment outlook for optometrists?
11. What are some of the employment opportunities available to persons anticipating careers as an optometrist?
12. Identify four colleges or universities that offer programs to prepare persons for a career as an optometrist.

RESOURCES:

Chart of the eye - Carolona Biological Supply Co.; #57-6952 Human Eye and Vision.

The Science of Biology; Weisz; McGraw-Hill.

Biology-An Inquiry into the Nature of Life; Weinberg; Allyn and Bacon.

Living Things; Fitzpatrick, Teter, Bain; Holt, Rinehart & Winston.

Consumer Survival Kit - Eye Care; P.O. Box 1977; Owings Mills, Maryland 21117.

Optometrist; Careers, P.O. Box 135, Largo, Florida 33540.

Optometry: Careers with Vision. Optometry for You. What is an Optometrist? American Optometric Association, 7000 Chippewa Street, St. Louis, Missouri 63119.

Why not be an Optometrist? U.S. Department of Labor, Women's Bureau, Washington, D.C.

Optical Society of America, Room 8-203, Massachusetts Institute of Technology, Cambridge, Massachusetts 02139.

Optometrist - one of 37 Health Career Brochures $2.00; Park Publishing House, 516 Viewridge Dr., Angwin, Ca 94508.

Film Loop - Optometrist - Job Opportunity Series.

Occupational Outlook Handbook; U.S. Department of Labor.

Career Information Center/7 Health; Butterick Publishing.

Optometrist; Chronical Guidance Publications, Inc.; Moravia, New York 13118.

CURRICULUM GUIDE

CLUSTER: Health

JOB FAMILY: Pharmacologist

SUBJECT AREA: Biology

NAME OF COURSE: Biology

NAME OF UNIT: Drugs

TIME ALLOWED: Two class periods

OBJECTIVES: Have the student determine the effect of various drugs on the heart rate of Daphnia (water flea).

Introduce the student to the occupation of pharmacology.

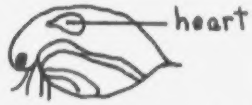
ACTIVITIES:

A. INTRODUCTION
The student should locate all available information about the occupation of pharmacologist.

B. LABORATORY EXERCISE

1. Purpose - To see the effects of various chemicals on the rate of heart beat of the Daphnia.

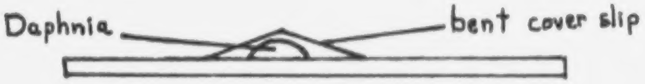
2. Materials - Daphnia - water flea, small fresh water crustacean.



microscope, slides and bent coverslips (plastic), solutions of: adrenalin, nicotine, alcohol, caffeine, etc.

3. Procedure:
    1. Catch a Daphnia and put it on a slide with one drop of water.
    Daphnia swim very fast so add one or two drops of Protoslow. This is a viscous fluid and slows the Daphnia down. It is like trying to swim in a pool of molasses.

2. Place a bent cover slip on top of the Daphnia so he won't be squashed. Focus on his heart. He should be on his side.



3. Count his normal heart rate. A Daphnia's normal heart rate is too fast to count by normal methods so use the following: One person watches the clock to give the 15 second start and stop signal. The other person uses a pencil and paper and while watching the Daphnia, makes dots on the paper for each heart beat. Follow an S pattern, so one dot isn't on top of another. Then count the number of dots on the paper for the 15 second period and multiply by 4 to calculate beats per minute.

4. Next, place a few drops of the chemical on the Daphnia and let it sit for a few minutes. Then record the heart rate again for 15 seconds and multiply by 4. You may have to calculate the rate a couple of times and take an average to make sure your results are accurate.

5. Carefully return the Daphnia to the special container labeled for this purpose.

6. Record your data on the board. The data from a number of classes will be collected for you to draw conclusions from.

EVALUATION: 1. DATA SHEET

EFFECT OF VARIOUS DRUGS ON HEART RATE

Name of Chemical	Heart Rate Before	Heart Rate After/Minute

2. Which of the above is a stimulant? Depressant?
3. Why did you have to take a normal heart rate for each Daphnia?
4. Why is it bad to take alcohol with sleeping pills or other depressants?
5. What kinds of experiments do pharmacologists do?
6. What kinds of chemicals other than drugs do pharmacologists test?
7. What effects do pharmacologists test for?
8. Would a pharmacologist use Daphnia as you did in this lab? Why or why not?
9. How much education does a pharmacologist need?
10. What are some places of employment for pharmacologists?

11. Which additional high school courses could a person take to help prepare for a career as a pharmacologist?

12. What is the employment outlook for pharmacholgists?

13. Which companies or organizations would most likely offer employment for pharmacholgists?

14. Identify four colleges or universities that offer programs for the preparation of a career as a pharmacologist.

RESOURCES: Lab Book - BSCS Yellow version.

Occupational Outlook Handbook; U.S. Department of Labor.

Career Information Center/7 Health; Butterick Publications.

A Career in Pharmacology; American Society of Pharmacology and Experimental Therapeutics, Office of the Executive Officer, 9650 Rockville Pike, Bethesda, Maryland 20014.

Pharmacologist; Chronical Guidance Publications, Inc., Moravia, New York 13118.

Pharmacologist; Careers, P.O. Box 135, Largo, Floriad 33540.

Consumer Survival Kit; OTC Drugs; P.O. Box 1977, Owings Mills, Maryland 21117.

CURRICULUM GUIDE

CLUSTER: Health

JOB FAMILY: Technician, Medical Laboratory Assistant

SUBJECT AREA: Biology

NAME OF COURSE: Biology

NAME OF UNIT: Circulatory System

TIME ALLOWED: Two class periods

OBJECTIVES: Have the student identify the different blood cells and type their blood.

Introduce the student to three related fields: medical technologist, medical laboratory technician, and medical laboratory assistant.

ACTIVITIES:

A. INTRODUCTION
Three students should locate all the material available to them about the three occupations. Each student will present one occupation to the class.

B. OBSERVATION OF BLOOD CELLS
Make a slide of your blood following the procedure in your lab book or use a prepared slide of human blood. Use high power to focus on the cells. Draw a red blood cell and a white blood cell; label the nucleus when present.

C. BLOOD TYPING
Follow carefully the sterile procedure for obtaining blood. Your teacher will assist you to make sure you follow the proper procedure. Type your blood for A and B antigens.

EVALUATION:

1. Summarize the education needed for each of the 3 occupations.
2. List the types of duties of each occupation.
3. Which blood cells have nuclei? Which don't?
4. Which blood cells are more numerous, red or white?

5. What is the function of white blood cells? Red blood cells?

6. Locate a few different white blood cells? How are they different?

7. Which of the three occupations described would be preparing slides for identifying blood cells?

8. Which occupation would be looking at the slide to identify the different blood cells?

9. Which of the three occupations would do the blood typing and cross matching ?

10. What is your blood type?

11. To whom could you give blood for a transfusion?

12. From whom could you receive blood?

13. Why is a person of type O blood called the universal donor?

14. Why can a person of type AB receive blood from anyone?

15. Why is it important to determine a person's blood type before a transfusion is made?

16. Which additional high school courses could a person take to prepare for a career as a medical laboratory technician or a medical laboratory assistant?

17. What is the employment outlook for medical laboratory technicians or medical laboratory assistants?

18. Which organizations, institutions, or private practices would offer employment for medical laboratory technicians or medical laboratory assistants?

19. Identify four schools or institutes that offer programs for the preparation of a career as a medical laboratory technician or a medical laboratory assistant.

RESOURCES:

A Career as a Lab Technician; Armstrong Cork Co.; Public Relations Office, Lancaster, Pa. 17604.

Certified Lab Assistant, Laboratory Technician, Medical Assistant; Chronicle Guidance Publications, Moravia, New York 13118, 50¢ each.

Medical Assistant: The Most Versatile Member of the Allied Health Career Team; American Association of Medical Assistants, Executive Office, One East Wacker Drive, Suite 1510, Chicago, Illinois 60607.

Medical Office Assistants; Careers, P.O. Box 135, Largo, Florida 33540, 30¢ each.

Careers in the Medical Laboratory; American Society of Clinical Pathologists, Board of Registry, P.O. Box 4872, Chicago, Illinois 60680.

Careers in the Medical Laboratory, What Kind of Career Could I Have in a Medical Laboratory?; American Society of Medical Technology, Suite 1600, Hermann Professional Building, Houston, Texas 77025.

Why Not Be a Medical Technologist?; U.S. Department of Labor, Woman's Bureau, Washington, D. C.

Health Careers; Greater Cleveland Hospital Association, 1021 Euclid Avenue, Cleveland, Ohio 44115, $2.25 each.

Film:
In a Medical Laboratory; Color 28 min; National Committee for Careers in Medical Technology, 9650 Rockville Pike, Bethesda, Maryland 20014.

Organizations:
American Association of Medical Assistants, 510 North Dearborn Street, Chicago, Illinois.

Film loops:
Medical Laboratory Technologist

Laboratory book:
Biology Investigations; Haskel, Sygoda; Amsco School Publications, Inc.

Materials:
Prepared slide of blood cells, blood typing serum (anti A and anti B), slides, sterile cotton, alcohol (70%), sterile lancets, toothpicks, microscopes; Carolina Biological Supply Company.

Occupational Outlook Handbook; U.S. Department of Labor; Bureau of Labor Statistics.

Career Information Center/7 Health; Butterick Publications.

CURRICULUM GUIDE

CLUSTER:	Health
JOB FAMILY:	X-Ray Technologist
SUBJECT AREA:	Biology
NAME OF COURSE:	Biology
NAME OF UNIT:	Bones and Muscles
TIME ALLOWED:	Two Class Periods

OBJECTIVES:

Have the student learn the bones in the human body and learn the basic functions of bones and muscles.

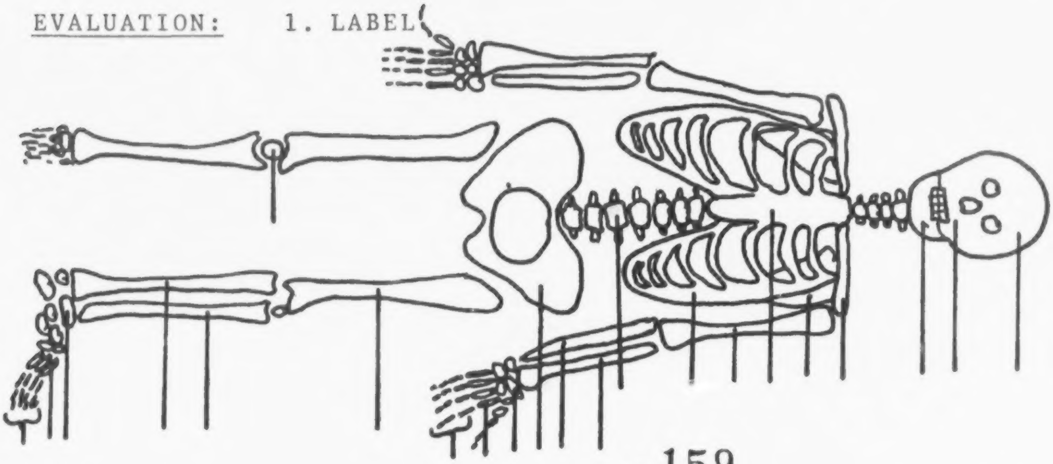
Have the student become familiar with the occupation of x-ray technology.

ACTIVITIES:

A. INTRODUCTION
The students should find out all the information they can about the occupation of x-ray technology.

B. READING AND LABORATORY
The student should read about bone structure, ligaments, tendon sprains, fractures and dislocations in their textbook.
The student will locate and label the bones of the human skeleton on the diagram on the evaluation sheet. The student will then locate all the bones on the human skeleton in the classroom.
Have an x-ray technologist come to speak to the students.

EVALUATION: 1. LABEL



2. What is the function of a tendon?

3. What is the function of a ligament?

4. If a person had a sprained or turned ankle, would ligaments or tendons be involved?

5. What areas of the body have the most bones?

6. An X-ray technologist has to learn many body positions to put the patient in when taking x-rays. Why is this necessary?

7. Why is accuracy very important in this field of work?

8. What is a fracture?

9. What is a dislocation?

10. Why does x-ray Technologist take physics?

11. How much education does it take to become an x-ray technologist?

12. Where do x-ray technologists work?

13. Which additional high school courses could a person take to help prepare for a career as an x-ray technologist?

14. What is the employment outlook for x-ray technologists?

15. Which institutions, organizations, or private practices would most likely offer employment for x-ray technologists?

16. Identify four schools, colleges, or institutes that offer programs for the preparation of a career as an x-ray technologist.

RESOURCES:

Biological Science - An Inquiry into Life; BSCS Yellow; Harcourt, Brace and World.

Biology - An Inquiry into the Nature of Life; Weinberg; Allyn and Bacon.

The Science of Biology; Weisz; McGraw-Hill.

Articulated Human Skeleton; Carolina Biological Supply Company.

Careers in X-Ray Technology; American Society of Radiologic Technology, 645 North Michigan Avenue, Room 620, Chicago, Illinois 60611.

Radiologic Technician; Missouri Department of Labor and Industrial Relations, Division of Employment Security, Box 59, Jefferson City, Missouri 65101.

Radiologic Technologist; Chronical Guidance Publications, Inc., Moravia, New York 13118, Cost 50¢.

Radiologic Technologist; Careers, P.O. Box 135, Largo, Florida 33540, Cost 45¢.

American Society of X-Ray Technicians; 16 Fourteenth Street, Fond du Lac, Wisconsin.

Anatomy at the Human Body; John Hopkins.

Speaker - X-ray technology; local college, university or hospital.

Occupational Outlook Handbook; U.S. Department of Labor, Bureau of Labor Statistics.

Career Information Center/7 Health; Butterick Publications.

Medical X-Ray Technologists; Idaho Department of Employment; Research and Analysis Section, P.O. Box 7189, Boise, Idaho 83707.

CURRICULUM GUIDE

CLUSTER: Transportation

JOB FAMILY: Auto Mechanic

SUBJECT AREA: Physical Science

NAME OF COURSE: Introductory Physical Science

NAME OF UNIT: Density

TIME ALLOWED: Two class periods

MAJOR IDEA: The functioning of a specific auto repair device can be demonstrated with a simple analogue.

OBJECTIVES: Demonstrate, with a simple simulation in the lab, the hydrometer as used in auto repair.

Discuss why the hydrometer is used.

ACTIVITIES: Give each student liquids of varying density: alcohol, water, glycerin, etc. Have the students take a test tube, fill it 1/3 full with sand, and stopper it. They will find if they let the tube float in water, a certain height of tube will remain above the water level. Have students mark off and measure the height, and then repeat the process with at least two more liquids.

EVALUATION:

1. Students should graph the height of the tube above the liquid level versus liquid density. They should find an approximate linear relationship.
2. Students should research and write a short essay on what a "hydrometer" is, how it works, and why auto mechanics use it.
3. Discuss in class different vocational aspects of auto repair.

4. Which additional high school courses could a person take to help prepare for a career as an auto mechanic?

5. What is the employment outlook for auto mechanics?

6. What are the employment and business opportunities available for auto mechanics?

7. Identify four schools, institutes, or companies that offer programs for the preparation of a career as an auto mechanic.

RESOURCES:

I. Books
   A. Introductory Physical Science textbook.

   B. CRC Handbook of Chemistry and Physics.

II. Speakers
   A. Speaker from local service station, to demonstrate a hydrometer and discuss why it is used?

III. Filmstrips
   A. Movie/filmstrip on density and how it is measured. (Physical Science series)

IV. Reference
   A. Service Station Management Corp.,
   Lancaster Avenue, Ardmore, Pa.

   B. Automotive Service Industry Assoc.,
   230 North Michigan Avenue, Chicago, Illinois 60601.

   C. Automotive Service Councils; 188 Industrial Drive, Suite 112, Elmhurst, Illinois 60126.

   D. Automobile Service Councils of America;
   4001 Warren Blvd., Hillside, Illinois 60162.

   E. Any Manufacturer of Car Batteries;
      (i) Sears Roebuck & Co.
      (ii) Delco Corporation

CURRICULUM GUIDE

CLUSTER: Transportation

JOB FAMILY: Auto Mechanic

SUBJECT AREA: Physical Science

NAME OF COURSE: Introductory Physical Science

NAME OF UNIT: Solubility

TIME ALLOWED: Two class periods

MAJOR IDEA: Why antifreeze is used as protection against boil-over can be demonstrated in such a way as to have vocational relevance.

OBJECTIVES: Demonstrate with a lab exercise the purpose and concept behind an aspect of automotive function and the role of an auto mechanic in maintaining that automotive function.

ACTIVITIES: The students in the class are divided into lab teams of two people. Each group measures out assigned and varying quantities of sodium chloride and dissolves them in 50 ml's of water. Each group then determines the boiling point of the solution. (1 period)

EVALUATION:

1. Each student should graph boiling temperature versus concentration of solution.
2. Each student should discuss in a one paragraph essay why this phenomenon should be of value in the functioning of an automobile, including how one determines the concentration of solute in radiator coolant in a car. Exercise might include student schematic of a cooling system.
3. Student should discuss in class the commercial solvents used and why such compounds as sodium chloride are not used in automobile radiators.

4. Students can list various aspects of careers related to auto repair; such aspects as mechanic, solvent salesman, industrial chemist are possible.

5. Which are some of the high school courses a person could take to help prepare for a career as an auto mechanic?

6. What is the employment outlook for auto mechanics?

7. What are the employment and business opportunities available for auto mechanics?

8. Identify four schools, institutes, or companies that offer programs for the preparation of a career as an auto mechanic.

RESOURCES:

I. Books
   A. Introductory Physical Science Textbook

   B. CRC Handbook of Chemistry and Physics

II. Speakers
   A. Speaker from local service station

   B. Speaker from and/or visit to local site of commercial solvent preparation.

III. References
   A. Automotive Service Industry Association; 230 North Michigan Avenue, Chicago, Illinois 60601.

   B. Automotive Service Councils; 188 Industrial Drive, Suite 112, Elmhurst, Illinois 60126.

   C. Automobile Service Councils of America, Inc.; 4001 Warren Blvd., Hillside, Illinois 60126.

   D. Any Manufacturers of Antifreeze Products:
      (i) Xerex Corporation
      (ii) Firestone Corporation

CURRICULUM GUIDE

CLUSTER: Public Service

JOB FAMILY: Bartender

SUBJECT AREA: Physical Science

NAME OF COURSE: Introductory Physical Science

NAME OF UNIT: Volume and Mass

TIME ALLOWED: Two Class Periods

MAJOR IDEA: Students are exposed to an alternative system of measuring volumes, and use the concept of volume to investigate how the taste of a mixture changes with relative volumes of the components.

OBJECTIVES: This exercise simulates vocational activities of a bartender.

ACTIVITIES:

1. Students should list the types of activities bartenders do in everyday performances of their vocation.
2. Students should be given English system volume measuring devices and samples of lemon drink, club soda, bitters. By experimenting with mixtures containing varying quantities of these liquids, they can relate taste to relative volumes.

EVALUATION:

1. In a short, written essay, students should discuss what they felt were the relationships between the relative volumes of liquid used and the taste of the resulting mixture. Teacher should insist that students indicate in writing that proper lab technique requires you never taste anything in the lab, except when specified.

2. Which additional high school courses could a person take to help prepare for a career as a bartender?

3. What is the employment outlook for bartenders?

4. What are the employment and business opportunities available for a bartender?

5. Identify four schools or institutes that offer programs for the preparation of a career as a bartender.

RESOURCES:

I. Books
   A. Introductory Physical Science Textbook.

   B. The Bartender's Guide, Harper and Row.

II. Speakers
   A. Visitor from (or to) local bartending school.

III. References
   A. Educational Director; National Restaurant Association, 135 North Lake Shore Drive, Chicago, Illinois 60610.

CURRICULUM GUIDE

CLUSTER: Construction

JOB FAMILY: Electrician

SUBJECT AREA: Physical Science

NAME OF COURSE: Physical Science II or Survey of Physical Science

NAME OF UNIT: Electricity

TIME ALLOWED: Six Class Periods

MAJOR IDEA: Application of theoretical electrical concepts can lead to a sound understanding of vocational aspects of electrical work.

OBJECTIVES: Have students gain an understanding of an electrician's vocation by applying concepts of electricity to a simple lab project.

ACTIVITIES: Students are provided with materials and a schematic for wiring a model house. The schematic should include fusebox and a lighting system.

1. Students should try to devise simple analogues for practical devices (switches, fuses, etc.)
2. Following the schematic, students should wire the house.

EVALUATION:

1. Students can be evaluated on the quality of their wiring jobs.
2. Students should, in writing, describe the operation of the simple circuits they wired, and how their analogues resemble standard electrical devices.
3. Students could do a flow chart, indicating their sequence of operations.
4. Discussion of vocational aspects of electrician's work.

5. Which additional high school courses could a person take to help prepare for a career as an electrician?

6. What is the employment outlook for electricians?

7. What are the employment and business opportunities available for electricians?

8. Identify four schools or institutes that offer programs for the preparation of a career as an electrician.

RESOURCES:

I. Books
   A. Survey of Physical Science textbook.

   B. Any public library (section on electricity).

II. Speakers
   A. Visit by electrician.

   B. Visit by representative from electrical parts supply house.

   C. Visit by representative from an electrical research corporation (Bell Telephone, etc.)

III. References
   A. International Brotherhood of Electrical Workers, 1125 15th Street, N.W., Washington, D.C. 20005.

   B. National Joint Apprenticeship and Training Committee for the Electrical Industry, 1730 Rhode Island Avenue, N.W. Washington, D.C. 20036.

   C. National Electrical Contractors Assoc., 1730 Rhode Island Avenue, Washington, D.C. 20036.

CURRICULUM GUIDE

CLUSTER: Manufacturing

JOB FAMILY: Electroplater

SUBJECT AREA: Physical Science

NAME OF COURSE: Physical Science II

NAME OF UNIT: Electrolysis

TIME ALLOWED: Two Class Periods

MAJOR IDEA: Applications of electrolytic chemistry.

OBJECTIVES: The student will experience a specific lab exercise designed to stimulate a vocational experience.

The student will learn the nature of safety factors involved in such a lab (and vocational) experience.

ACTIVITIES:

1. Teacher and students should briefly discuss the underlying theoretical aspects of this lab exercise. Since electrolytic solutions consist of ions dissolved in water, students should be made to predict the results of running an electrical current through such a solution. (1/2 period)

2. Teacher and students should thoroughly discuss the safety aspects of this lab exercise, and vocational implications, such as long term exposure to the substances involved. (1/2 period)

3. Students prepare a solution of copper cyanide, caustic potassium hydroxide and sodium cyanide. They should bring in small pieces of metal they wish plated (perhaps small auto parts: mirror, etc.) and suspend them from the negative terminal (cathode) in the solution. The positive terminal (anode) is then suspended in the solution and the battery is connected. A copper coating will form on the metal. Different coatings are possible, varying with the salts in solution. (1-2 periods)

EVALUATION:

1. Have students describe, in a short, written essay, what is happening in the solution on a microscopic (atomic) level. Students could also research composition of alternative plating solutions. Finally have students discuss (or list) various aspects of the career (safety control, solution preparation, auto parts preparation, etc.)
2. Which additional high school courses could a person take to help prepare for a career as an electroplater?
3. What is the employment outlook for electroplaters?
4. What are the employment and business opportunities available for electroplaters?
5. Identify four schools or institutes that offer programs for the preparation of a career as an electroplater.

RESOURCES:

I. Books
  A. PSII Textbook.
  B. Handbook of Chemistry and Physics (CRC)

II. Speakers
  A. Visits to local electroplating shops of chemical plant complex. (DuPont)

III. References
  A. American Society for Engineering Education, 1 Dupont Circle, N.W., Washington, D.C. 20036.
  B. American Electroplating Society, 55 Melmore Gardens, East Orange, NJ 07017.
  C. National Association of Metal Finishers, 245 Lorraine Avenue, Upper Montclair, NJ 07043.
  D. American Technical Society, 848 E. 58th Street, Chicago, Illinois 60637.
  E. Automotive Service Councils; 188 Industrial Drive, Elmhurst, Illinois 60126.

CURRICULUM GUIDE

CLUSTER: Manufacturing

JOB FAMILY: Industrial Chemist

SUBJECT AREA: Physical Science

NAME OF COURSE: IPS

NAME OF UNIT: Physical Techniques of Separation

TIME ALLOWED: Six Class Periods

MAJOR IDEA: To have students perform an exercise which is an analogue of the type of work chemists routinely perform in separating unknown substances.

OBJECTIVES: Learn some activities of an industrial chemist.

ACTIVITIES: Each student is provided with a sample of "Sludge" consisting of water, methyl alcohol, sand, sodium chloride and potassium nitrate. The activity consists of their trying to separate and identify the components of the solution, using the physical separation techniques described in the IPS course.

EVALUATION:

1. Each student should diagram a flow chart illustrating the procedure and techniques. Give a brief written description of each of the components and the names of the identified components. Students also should discuss various aspects of chemistry as a vocation.
2. Which additional high school courses could a person take to help prepare for a career as an industrial chemist?
3. What is the employment outlook for industrial chemists?
4. Which industries or companies are most likely to offer employment for industrial chemists?
5. Identify four colleges or universities that offer programs for the preparation of a career as an industrial chemist.

RESOURCES:

I. Books
  - A. Introductory Physical Science Textbook.
  - B. CRC Handbook of Chemistry and Physics.

II. Speakers
  - A. Speaker from local industrial chemical concern (DuPont, McNeil lbas, Bell Telephone, etc.)
  - B. Speaker from local chemical research facility or university faculty.

III. References
  - A. The American Chemical Society, 1155 16th Street, N.W., Washington, D.C. 20036.
  - B. Manufacturing Chemists Assoc., Inc., 1825 Connecticut Avenue, Washington, D.C. 20009.

CURRICULUM GUIDE

CLUSTER: Fine Arts and Humanities

JOB FAMILY: Lighting Designer

SUBJECT AREA: Physical Science

NAME OF COURSE: Survey of Physical Science

NAME OF UNIT: Light

TIME ALLOWED: Two Class Periods

MAJOR IDEA: By investigating the additive nature of colored light, students can gain insight into the vocational considerations of a lighting designer.

OBJECTIVES: Demonstrate the additive nature of colored light, in regard to the primary and secondary colors.

ACTIVITIES:

1. Students should have two light sources, primary and secondary color gels, and white paper for a target. They should investigate the nature of (a) additive primary sources, (b) additive secondary sources and (c) combinations of secondary and primary colors.
2. In class, teacher should introduce the concept of primary and secondary colors.

EVALUATION:

1. Students should summarize, in a table, the results of the experiments.
2. In a short essay, students should summarize their results in the context of primary and secondary colors.
3. Students should list aspects of light and color production, mixing and stage lighting design.

4. Which additional high school courses could a person take to help prepare for a career as a lighting designer?

5. What is the employment outlook for lighting designers?

6. What are the employment and business opportunities available for lighting designers?

7. Identify four schools or institutes that offer programs for the preparation of a career as a lighting designer.

RESOURCES:

I. Books
   A. Any standard text of stage lighting design.

II. Visitors
   A. Local stage lighting designer

   B. Visit to stage production

III. References
   A. National Academy of Design, 1083 Fifth Avenue, New York, NY 10028.

   B. The Industrial Designers Society of America, 60 W. 55th Street, New York, NY 10019.

CURRICULUM GUIDE

CLUSTER: Agri-business and Natural Resources

JOB FAMILY: Meteorologist

SUBJECT AREA: Physical Science

NAME OF COURSE: Survey of Physical Science

NAME OF UNIT: Weather

TIME ALLOWED: 15 minutes per day for two weeks

MAJOR IDEA: By observing and analyzing nationwide weather patterns, students can gain insight into the type of activities performed by meteorologists.

OBJECTIVES: Have students perform an exercise simulating the activities of a professional meteorologist.

ACTIVITIES: Every day the student should locate and clip from a newspaper a national weather map. The national weather status and national weather patterns should be discussed in class daily so that the student can gain an insight into the work of a meteorologist.

EVALUATION:

1. The student should keep a daily log consisting of a weather map, his/her own observations and his/her predictions for the next day's weather. At the end of two weeks the student should prepare a general statement on the nature of weather prediction, discuss the patterns observed, and an outline of the major topics considered. Students could also discuss various aspects of the meteorological profession.
2. Which additional high school courses could a person take to help prepare for a career as a meteorologist?
3. What is the employment outlook for meteorologists?
4. Which companies or organizations are most likely to offer employment for meteorologists?
5. Identify four colleges or universities that offer programs for the preparation of a career as a meteorologist.

RESOURCES:

I. Books
   - A. Survey Physical Science textbook
   - B. Time-Life Science series (Weather), Time-Life Inc.

II. Sources
   - A. Local weather information, both print and video media

III. Speakers
   - A. Visitor from local meteorological station

IV. References
   - A. American Meteorological Society, 45 Beacon Street, Boston, MA 02108.
   - B. Air Weather Service/D.O.T., Stop 400, Scott Air Force Base, Illinois 62225.
   - C. American Geophysical Union, 2100 Pennsylvania Avenue, NW, Washington, D.C. 20037.

CURRICULUM GUIDE

CLUSTER: Agri-business and Natural Resources

JOB FAMILY: Meteorologist Technician

SUBJECT AREA: Physical Science

NAME OF COURSE: Survey of Physical Science

NAME OF UNIT: Weather

TIME ALLOWED: Four periods

MAJOR IDEA: Students can gain insight into a meteorological technician's vocation, including instrument function and data collection, by constructing a small scale weather station and using it to record local weather conditions.

OBJECTIVES: Have students build a functioning weather station and use it to collect data on local weather conditions.

ACTIVITIES: The students should plan, blueprint, and construct a weather station consisting of at least five separate devices. The students should then observe local weather conditions and compare their results to those obtained by professional forecasting services.

EVALATUION:

1. The teacher can easily evaluate the quality of the instruments. A written description of how they function and what they measure should be prepared by the student.
2. Which additional high school courses could a person take to help prepare for a career as a meteorologist technician?
3. What is the employment outlook for meteorologist technicians?
4. Which companies or organizations are most likely to offer employment for meterologist technicians?
5. Identify four schools or institutes that offer programs for the preparation of a career as a meteorologist technician.

RESOURCES:

I. Books
   - A. Survey of Physical Science Textbook
   - B. Time-Life Science series (weather), Time-Life Inc.

II. Speaker
   - A. Visitor from a local weather forecasting service

III. References
   - A. American Meteorological Society, 45 Beacon Street, Boston, MA 02108.
   - B. Air Weather Service/D.O.T., Stop 400, Scott Air Force Base, Illinois 62225.
   - C. American Geophysical Union, 2100 Pennsylvania Avenue, NW, Washington, D.C. 20037.

CURRICULUM GUIDE

CLUSTER: Personal Services

JOB FAMILY: Piano Tuner

SUBJECT AREA: Physical Science

NAME OF COURSE: Survey of Physical Science

NAME OF UNIT: Waves and Sound

TIME ALLOWED: Two periods

MAJOR IDEA: Simple theoretical concepts of wave motion and sound can be readily applied in demonstrating the vocation of piano tuner.

OBJECTIVES: Demonstrate piano tuning as a direct application of scientific theory.

ACTIVITIES: Each student should be given a tuning fork set to a specific frequency. The teacher should generate, either with an oscillator or musical instrument, a tone of nearby but different frequency. The students should hear a "beat" phenomenon; they should count the number of "beats" (pulses) in a 10 second time span; they should repeat this for other frequencies.

EVALUATION:

1. Students should graph frequency versus the beat frequency. Students should conclude or predict beat frequency as the source frequency approaches the tuning fork frequency.
2. Students should research and write an essay on the practical aspects of piano tuning. The essay should include discussion of how a vibrating string produces tone, why different strings give different tones, and how string tones are altered.
3. Discuss vocations in piano construction/repair.

4. Which additional high school courses could a person take to help prepare for a career as a piano tuner?

5. What is the employment outlook for piano tuners?

6. What are the employment and business opportunities available for piano tuners?

7. Identify four schools or institutes that offer programs for the preparation of a career as a piano tuner.

RESOURCES:

I. Books
   A. Survey Physical Science Textbook
   B. Any introductory physics textbook

II. Speaker
   A. Visitor from piano repair w/demonstration of piano tuning.

III. References
   A. Piano Technicians Guild, P.O. Box 1813, Seattle, Washington 98111.

   B. National Piano Foundation, 435 N. Michigan Avenue, Chicago, Illinois 60611.

CURRICULUM GUIDE

CLUSTER: Fine Arts and Humanities

JOB FAMILY: Radioactive Dater

SUBJECT AREA: Physical Science

NAME OF COURSE: Survey of Physical Science

NAME OF UNIT: Radioactivity

TIME ALLOWED: Two periods

MAJOR IDEA: Application of radioactivity theory to the practical concern of dating old objects.

OBJECTIVES:

1. Construct a radioactive decay curve.
2. Date an object from a given example provided by the teacher.

ACTIVITIES:

1. Teachers should give brief instruction in use of geiger counters.
2. Students should estimate counts per munite at various times, screening out samples with long half-lives.

EVALUATION:

1. Students should construct a decay curve (counts per minute versus time) and estimate half-life.
2. Students should try to construct the exponential expression used to calculate quantities of decay product obtained from starting material.
3. Students should try to estimate the amount of time an object has been decaying for a given sample problem.
4. Students should write an essay on techniques in radioactive dating.
5. Students should discuss different vocations using radioactive dating.
6. Which additional high school courses could a person take to help prepare for a career as a radioactive dater?

7. What is the employment outlook for radioactive daters?

8. Which companies, organizations, or institutions would most likely offer employment for radioactive daters?

9. Identify four colleges or universities that offer programs for the preparation of a career as a radioactive dater.

RESOURCES:

I. References
   - A. Survey of Physical Science Textbook
   - B. CRC Handbook of Chemistry and Physics
   - C. Aronoff, S.; Techniques of Radiobiochemistry; Inway State College Press, Ames, Iowa.
   - D. Brown, H.; The Age of the Solar System; Scientific American, 196, (30): 80-84 (1957).
   - E. Libby, W.F., Radiocarbon Dating, 2nd Ed. University of Chicago Press, Chicago, Illinois 19155.

II. Speaker
   - A. Visitor from Archaeology/Anthropology Department of any local university.

III. References/Filmstrips from:
   - A. Nuclear Regulatory Commission, Washington, D.C.
   - B. Department of the Interior (Historical Section); Washington, D.C.
   - C. Archaeological Institute of America, 260 West Broadway, New York, NY 10013.

CURRICULUM GUIDE

SUBJECT AREA: Anthropology, Psychology, World History, Sociology

NAME OF COURSES: Cultural Anthropology, Psychology: Understanding Yourself, World History, Sociology

NAME OF UNIT: Introduction fill-in or substitute lesson.

TIME ALLOWED: 1 class period

MAJOR IDEA: The expanding, complex society of today's world has created a need for people who are interested in improving the quality of life and the living condition of human beings. The social sciences deal directly with this and related problems.

OBJECTIVES: Understand how people and their problems have been dealt with both in the past and the present.

Understand the various natural resources which provide sustenance for humankind.

Know the six major professions of the social sciences.

Understand that school curriculum is related to career opportunities.

Understand the meaning of the word "social" in the phrase social sciences.

Understand that there exists a variety of career opportunities under the broad heading of social sciences.

Become acquainted with the scope, educational requirements, and activities of the professions of economist, historian, sociologist, political scientist, geographer, and anthropologist.

CONTENT: A general analysis of the social science area and the various occupations which are allied with it in order to provide an introduction to some possible career choices.

ACTIVITY: Teacher -

Have students write a definition of social sciences and list as many occupation as they can which are part of the social sciences.

Show the film (Video-tape) Is a Career in the Social Sciences for You?

Conduct a discussion of the film (video-tape) comparing the pre-answers of the students with the information provided in the film.

Provide additional information and answer questions about the six major professions talked about in the film.

Student - Do the pre-assignment.
Watch the film.
Participate in the discussion and ask questions.

EVALUATION:

1. Which of the following are generally considered to be the six (6) major professions of the social sciences?

A. Anthropologist
B. Economist
C. Geographer
D. Geologist
E. Historian
F. Mathematician
G. Political Scientist
H. Sociologist

1. A, B, C, E, G, H
2. A, B, C, D, E, F
3. B, C, D, E, F, G
4. B, D, E, F, G, H
5. C, D, E, F, G, H

2. A person interested in improving the quality of life and living conditions of human beings when looking at a college catalogue would look under which of the following headings:

A. Social Sciences
B. History, Political Science
C. Sociology, Psychology
D. All of Above
E. None of Above

RESOURCES: U.S. Government Occupational Outlook Handbook

National Council for the Social Studies, Washington, D.C.

Hophe, W., The Encyclopedia of Careers and Vocational Guidance, Vol. I and II, Chicago, J.G. Ferguson Publishing Co., 1978.

(Film) "Is A Career in the Social Sciences for You?" The Library of Career Counseling Films, Philadelphia, Pen Jer Del Corp., 1977.

Nesmith, F., McMillan, J., Social Studies Career Opportunities, N.Y., Houghton Mifflin, 1975.

CURRICULUM GUIDE

CLUSTER: Fine Arts and Humanities

JOB FAMILY: Archaeologist

SUBJECT AREA: Anthropology

NAME OF COURSE: Cultural Anthropology

NAME OF UNIT: Human Origins

TIME ALLOWED: 3 class sessions

MAJOR IDEA: There have been a variety of theories about the origin of the human species. Careful, scientific study and modern technology are helping to develop a more accurate explanation of this origin. The occupation of archaeologist is concerned with the discovery and explanation of human origins.

OBJECTIVES: Understand the need to distinguish fact from opinion.

Know how the work and ideas of people such as de Perthes, Darwin, and L.S.B. Leakey have helped to develop explanations about human origins.

Understand how archaeological discoveries such as Cro-Magnon and Australopithecus have helped to prove the theories of human development.

Know how theory development, library research, and field work are linked together in the science of archaeology.

Become acquainted with the scope, educational requirements, and activities of the occupation Archaeologist.

CONTENT: A study of the major ideas and discoveries which have produced the scientific area of archaeology. Also a case study of one of the most noteworthy recent archaeologists which shows the various aspects of the occupation of archaeology.

ACTIVITY: Teacher -

Assign the reading "The Search for Our Ancestors" and have students make a chronological list of the people, the ideas, and discoveries which are included.

Show the film Dr. Leakey and the Dawn of Man and have students name a list of the things Dr. Leakey did in the film.

Check assignments, conduct a discussion of the reading and the film.

Relate what was read and seen to the present day occupation of Archaeologist.

Student - Read "The Search for Our Ancestors" and do assignment.

Watch the film Dr. Leakey and the Dawn of Man and do the assignment.

Participate in the discussion and ask questions.

EVALUATION:

1. A person who has a vivid imagination, the ability to search for small items, and the ability to make up theories might be interested in the field of:

   A. Cooking
   B. Mechanical Drawing
   C. Archaeology
   D. Flight Attendant

2. The occupation of archaeology can involve which of the following activities?

   A. digging for evidence of the past
   B. examining fossils and artifacts
   C. describing the life of early man
   D. all of the above
   E. none of the above

RESOURCES:

"The Search for Our Ancestors," Origins of Humanness, Patterns in Human History, N.Y., The MacMillan Co., 1971, pp. 5-14.

Film: Dr. Leakey and the Dawn of Man, Washington, D.C., National Geographic Society, 1966.

Nesmith, F., McMillan, J., Social Studies Career Opportunities, N.Y., Houghton Mifflin, 1975.

Careers, Research Number 82, Career as an Archaeologist Scientific Career Opportunity For Men and Women, Chicago, The Institute for Research, 1973.

Local speakers from the community, a university, or a museum.

Field trip to local archaeological digs, the University of Pennsylvania Museum, Philadelphia, Pa., or the New Jersey State Museum, Trenton, NJ

Magazines: Archaeology, American Antiquity, Expedition, National Geographic Society.

Pamphlet: Archaeologists, Science Research Associates, 1963.

CURRICULUM GUIDE

CLUSTER: Fine Arts and Humanities

JOB FAMILY: Cartographer

SUBJECT AREA: World History

NAME OF COURSE: World History

NAME OF UNIT: Introduction

TIME ALLOWED: 3-4 class periods

MAJOR IDEA: The history of the world from prehistoric times to the present has been one of expansion and growth of the knowledge of the earth's surface and its resources. Knowing the kinds of maps which are made by cartographers helps to provide a prospective of historical events as well as an insight into the work of the occupation of cartography.

OBJECTIVES: To understand that the need for locating places and resources has led people to draw maps for centuries.

To know the different types of maps available.

To understand that using maps provides a history student with a time and space perspective.

To know how to read different kinds of maps.

To understand how maps are made.

To become acquainted with the scope, needed education, and activities of the occupation of cartography.

CONTENT: An analysis of the history of mapmaking, how to read and use different kinds of maps, and the importance of maps in the study of history is used in order to develop an understanding of the kind of work done by a Cartographer.

ACTIVITIES: Teacher -
Provide students with a copy of a map of the world in 1000A.D. and a present day map and ask students to make a list of the differences.

Show the filmstrip and cassette "The Making of Maps."

Conduct a discussion relating the filmstrip to the assignment.

Show the following filmstrips - "The Messages of Maps," "Using Maps," "The Round Earth on Flat Paper," "Survey the Earth" and have students draw a map of their community.

Conduct a discussion of the ideas involved in each of the filmstrips and go over the map of the community.

Relate the ideas in the filmstrips to the occupation of cartographer.

Student - Do the assignments.
Watch the filmstrips.
Participate in the discussions.

EVALUATION:

1. People who make maps are called:

   A. Anthropologists
   B. Cartographers
   C. Auto Mechanics
   D. Genealogists

2. Which of the following would be helpful to a person interested in the field of cartography?

   A. an interest in details
   B. an interest in the relationships between the earth's surface and resources
   C. a knowledge of statistics such as odds in card playing

RESOURCES:

Bacon, P. (ed), Focus on Geography, 40th Yearbook, Washington, D.C., National Council for the Social Studies, 1970.

National Council for Geographic Education, Normal, Ill.

Association of American Geographers, Washington, D.C.

American Congress on Surveying and Mapping,
Falls Church, Va.

Local speakers from connumity or a university.

National Geographic (magazine)

Topographical survey maps - U.S. Government Printing Office, Washington, D.C.

Mazour, A., Peoples, J., A World History - Men and Nations, N.Y. Harcourt Brace Jovanovich, Inc., 1968, pp. 1, 318, 319.

Cram World History Atlas, Indianapolis, The George F. Exam Co., Inc.

Exploring The World of Maps: "The Messages of Maps", "Using Maps", "The Round Earth on Flat Paper", "Surveying the Earth", "The Making of Maps", Washington, D.C., National Geographic Society, 1973.

Nesmith, F., McMillon, J., Social Studies Career Opportunities, N.Y. Houghton Mifflin, 1975.

CURRICULUM GUIDE

CLUSTER: Fine Arts and Humanities

JOB FAMILY: Commercial Artist

SUBJECT AREA: Sociology, Psychology, Art, Mathematics

NAME OF COURSE: Sociology, Psychology, Art, Mathematics

NAME OF UNIT: Class and Race in the U.S.

TIME ALLOWED: 2-3 class periods

MAJOR IDEA: Income, education, occupation and race are the components upon which people are judged to be on one class level or another in American society. It is often difficult for the general student to understand the statistics concerning these components when they are presented in a tabular form. The commercial (graphic) artist can provide a more easily understood visual picture of factual information.

OBJECTIVES: List the objective criteria which are considered the significant indicators of social class in American society.

Understand the ways in which income, education and occupation are related.

Interpret data on family and personal income as it exists in the U.S.

Compare the incomes and occupations of non-whites and whites in American society.

Understand how wealth is distributed in the U.S.

Interpret statistical information presented in graphic form.

Understand how a commercial artist can design a visual picture or chart of statistical information.

CONTENT: A graphic presentation of social stratification information of American society and information about the occupation of Commercial Artist.

ACTIVITY:

Teacher -

Provide copies of the chart Social Stratification in the U.S.

Allow time for students to view and analyze the chart.

Answer questions students have concerning the chart's structure and key (legend).

Ask questions related to objectives.

Conduct a discussion of the chart's information and structure.

Provide information about the occupation of Graphic Artist.

Student -

Examine and ask questions about the chart.

Participate in the discussion about the chart's information and structure.

EVALUATION:

1. In the area of Social Science the Commercial Artist frequently can be found doing the following:

   A. figuring statistics
   B. writing letters
   C. drawing graphs
   D. writing books

2. Because a drawing is often easier to understand people employed as ______________________ are often found making drawings which show statistical information.

   A. sociologists
   B. commercial artists
   C. drafters
   D. geographers

RESOURCES:

Ross, S.J., Social Stratification in the U.S., Baltimore, Social Graphics Co., 1978.

Barth, J. (ed.), Class and Race in the U.S., Boston, Allyn and Bacon, Inc., 1972.

Hulme, M., Anczarki, S., Small, L., Directory of People in Nontraditional Jobs, Sommerville, N.J., N.J. Dept. of Education, 1978, pp. 1, 15.

National Association of Schools of Art, Washington, D.C., National Art Education Association, Washington, D.C.

Local speakers from the community or advertising or publishing companies or art schools.

Hophe, W., The Encyclopedia of Careers and Vocational Guidance, Vol. II.

Careers and Occupations, Chicago, J.G. Ferguson Publishing Co., 1978, pp. 60-63.

Careers, Research Number 14, Career Opportunities As A Commercial Artist, Chicago, The Institute for Research, 1975.

CURRICULUM GUIDE

CLUSTER: Transportation

JOB FAMILY: Flight Attendant

SUBJECT AREA: Sociology

NAME OF COURSE: Sociology

NAME OF UNIT: Institution - The Family

TIME ALLOWED: 3 class periods

MAJOR IDEA: With the changing ideas about sex roles in today's society both young men and young women might have difficulty in visualizing what the future has to offer for the adult female. A knowledge of how a sexual division of labor can cause discrimination and prove disadvantageous to both sexes can help young people to see the adult male/female, of the future, occupying roles in which they are more individually suited. The airline industry is one such occupation where equality of opportunity has been limited in the past but is presently changing.

OBJECTIVES: Understand that family roles and work roles do not have to be determined by a person's sex.

Understand that sex roles are changing in American society.

Understand that biological differences are not rational reasons for a sexual division of labor in America today.

Recognize the fact that corporations have deliberately discriminated against people, in the past, according to their sex.

Become acquainted with the scope, needed education, and activities of aviation occupations.

CONTENT: An exercise in irrational hiring practices along with an analysis of why discrimination occurs in both traditional and technologically advanced societies. Also an indepth personal view of the sexual division of labor as it has occurred in the airline industry and the changes taking place in this occupational area.

ACTIVITY:

Teacher -
Provide students with a job advertisement and four responses to it and have the students pick the logical choice.

Have students list what they think are the reasons for a sexual division of labor.

Assign the reading "Why is There a Division of Labor by Sex?".

Have students compare their lists with the reading.

Show the filmstrip "Wings of Women" and discuss the ideas presented.

Provide students with information about the field of aviation.

Student -
Do all assignments.

Participate in the discussions and ask questions.

EVALUATION:

1. The occupation of Flight Attendant is open to:

   A. females only
   B. males only
   C. males and females
   D. unmarried males only

2. A person who likes to travel, likes helping people, and can cope with a flexible work schedule might be interested in the occupation of:

   A. flight attendant
   B. bank teller
   C. cartographer
   D. psychologist

RESOURCES:

Flight Attendant, Trenton, N.J., State of N.J. Dept. of Labor and Industry, 1978.

RESOURCES:

Mathematics in Life
L.C. Bolster, H.D. Woodbum
Scott Foresman and Co. 1977

Consumer and Career Mathematics
L.C. Bolster, H.D. Woodbum
J.H. Gipson
Scott Foresman and Co. 1977

Vocational Biographies
Vocational Biographies Pub. Co. 1978

Time Share
Subject: Mathematics
Object: Career Opportunities

Career Education Center
Butterick Pub. Co. 1978

Current Career and Occupational
Literature 1973-77
Leonard Goodman
H.W. Wilson Co. L978

Handbook of Career Information Resources
H.S. Vocatonal Technical Library 1976

Key Resources in Career Education
National Institute of Education

Magazines: Career World

Speakers from airlines located at local airports

Class trips to a local airport

Speaker from the community or travel agencies

Roles of Modern Women, Boston, Allyn and Bacon, 1972, pp. 12-19

F.S. Klein, Easy, "Wings of Women" Eve of Change, Westinghouse Learning Corporation, 1973

Nesmith, F., McMillon, J., Social Studies Career Opportunities, N.Y., Houghton Mifflin, 1975

Careers, Research Number 39 Flight Operations Careers and Jobs, Chicago

Institute for Research, 1978

CURRICULUM GUIDE

CLUSTER: Health

JOB FAMILY: Psychologist

SUBJECT AREA: Psychology

NAME OF COURSE: Psychology: Understanding Yourself

NAME OF UNIT: Behavior

TIME ALLOWED: One-two class periods

MAJOR IDEA: Psychology is concerned with the behavior of all living things or organisms. In order to understand and explain behavior, it is necessary to understand how people can be studied in a scientific way. The occupation of pyschologist involves research of peoples' behavior.

OBJECTIVES: Be able to write a definition of psychology.

Be able to list the four methods used by psychologists in obtaining information about behavior.

Understand the difference between an intuitive idea and a careful analysis of the variables involved in behavior.

Understand how the four methods used by psychologists in obtaining information about human behavior can be applied in studying a specific behavior.

Become acquainted with the scope, needed education, and activities of the occupation of psychology.

CONTENT: An exercise in how to study the problem of "Why people tip at a restaurant?" in order to understand the scientific methods used by psychologists and the kind of work done by people in the occupation psychology.

ACTIVITIES:

Teacher: Assign the problem (How would you find out why people tip at a restaurant?), discuss the student solution, show a filmstrip and relate the filmstrip information to the students' solutions:

provide information about the occupation of psychologist.

Student: Do the assignment; participate in the discussion;

watch the filmstrip;

participate in the follow up discussion.

EVALUATION:

1. Which of the following occupations are most likely to study human behavior in order to understand the present as well as the past?

   A. Sociologist
   B. Psychologist
   C. Social Psychologist
   D. Geographer

2. Which of the following statements is true?

   A. The behavior of people can be studied safely by social scientists.
   B. Psychologists, Social Psychologists, and Sociologists are social scientists.
   C. The information obtained by social science research can be helpful in solving everyday human problems.

3. Which of the following people would you go to for professional help with a personal problem?

   A. Sociologist
   B. Social Psychologist
   C. Psychologist
   D. Travel Guide

4. Which of the following professions demands a knowledge of statistics?

   A. Sociologist
   B. Social Psychologist
   C. Psychologist
   D. All of the above
   E. None of the above

5. Which of the following would be most likely to be found conducting a survey?

    A. Social Psychologist
    B. Sociologist
    C. Psychologist
    D. All of the above
    E. None of the above

RESOURCES:

Filmstrip and Cassette:
Psychology: The Study of Behavior, Part I; N.Y., Guidance Associates, 1978.

Nesmith, F., McMillan, J., Social Studies Career Opportunities, N.Y., Houghton Mifflin, 1975.

Local speaker from a University, community parents, or child guidance team.

Magazines:
Psychology Today, H.S. Psychology Teacher, Teaching of Psychology, Human Behavior.

CURRICULUM GUIDE

CLUSTER: Health

JOB FAMILY: Social Psychologist

SUBJECT AREA: Sociology, Psychology

NAME OF COURSE: Sociology

NAME OF UNIT: Introduction Socialization

TIME ALLOWED: 1 - 1½ class periods

MAJOR IDEA: The reasons why people behave in unacceptable ways, such as becoming panicky, can be discovered by safe experimentation with human beings.

There is an overlap of the two social science areas of sociology and psychology which has resulted in the occupation of Social Psychologist.

OBJECTIVES: Understand that the way people perceive a crisis situation will determine whether or not they will panic.

Understand that in a laboratory situation real life can be simulated in a way in which no one is harmed.

Understand how the behavior of individuals and the behavior of groups often can not be separated.

Learn how a good imagination is often necessary in order to design an experiment with human beings.

Become acquainted with the scope, needed education, and activities of the occupation of social psychologist.

CONTENT: An analysis of Alexander Mintz's experiment on why people panic at theater fires and other similar situations, along with information on the occupation of social psychologist.

ACTIVITIES:

Teacher: A discussion of the reasons people panic followed by a lecture on the reasons for and design of the Mintz Experiment;

provide information about the occupation of Social Psychologist.

Student: Participate in the discussion, take notes on the lecture, ask questions, and read about the occupation from a profile.

EVALUATION:

1. Which of the following occupations are most likely to study human behavior in order to understand the present as well as the past?

   A. Sociologist
   B. Psychologist
   C. Social Psychologist
   D. Geographer

2. Which of the following statements is true?

   A. The behavior of people can be studied safely by social scientists.
   B. Psychologists, Social Psychologists, and Sociologists are social scientists.
   C. The information obtained by social science research can be helpful in solving everyday human problems.

3. Which of the following people would you go to for professional help with a personal problem?

   A. Sociologist
   B. Social Psychologist
   C. Psychologist
   D. Travel Guide

4. Which of the following professions demands a knowledge of statistics?

   A. Sociologist
   B. Social Psychologist
   C. Psychologist
   D. All of the above
   E. None of the above

5. Which of the following would be most likely to be found conducting a survey?

   A. Social Psychologist
   B. Sociologist
   C. Psychologist
   D. All of the above
   E. None of the above

RESOURCES:

Maccoby, W., Newcomb, T., Hartley, E., "Alexander Mintz - Non-adaptative Group Behavior", Readings in Social Psych, N. Y., Holt, Rinehart and Winston, Inc., 1958, pp. 575-582.

Nesmith, F., McMillan, J., Social Studies Career Opportunities, N. Y., Houghton Mifflin, 1975.

Local speakers from a University or Child Guidance Team, or community parent.

Magazines:
Psychology Today, H.S. Psychology Teacher, Teaching of Psychology, Human Behavior.

CURRICULUM GUIDE

CLUSTER: Fine Arts and Humanities

JOB FAMILY: Sociologist

SUBJECT AREA: Sociology

NAME OF COURSE: Sociology

NAME OF UNIT: Individual Level, Survey of Stereotypes

TIME ALLOWED: Two class periods

MAJOR IDEA: Stereotypes can be altered or changed resulting in reduced hostile attitudes between groups of people.

Sociologists can develop practical means of altering stereotypes by applying the scientific method in experiments with people.

OBJECTIVES: Compare traditional ideas about eliminating stereotypes with an experimentally proven hypothesis.

List the steps of the scientific method.

Understand how sociologists can safely experiment using human beings.

Understand how a sociologist uses the scientific method in testing an hypothesis.

Become acquainted with the scope, educational requirements, and activities of the occupation of sociologist.

CONTENT: An analysis of the Sherif experiment dealing with the deliberate attempt to change stereotypes and information about the occupation of Sociologist.

ACTIVITIES:

Teacher: Assign the reading of the Sherif experiment; conduct a discussion and explanation of same; provide information about the work of Sociologists.

Student: read and analyze the assigned experiment; participate in a discussion of both the experiment and the occupation;

read an occupational profile of the occupation of Sociologist.

EVALUATION:

1. Which of the following occupations are most likely to study human behavior in order to understand the present as well as the past?

   A. Sociologist
   B. Psychologist
   C. Social Psychologist
   D. Geographer

2. Which of the following statements is true?

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   D. All of the above
   E. None of the above

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   A. Social Psychologist
   B. Sociologist
   C. Psychologist
   D. All of the above
   E. None of the above

RESOURCES:

Images of People, Boston, Allyn & Bacon, Inc., 1977, pp. 22-31

Nesmith, F., McMillan, J., Social Studies Career Opportunities, N. Y., Houghton Mifflin, 1975.

Local speakers from a University or community parents.

Magazines:
Human Behavior, Psychology Today.

CURRICULUM GUIDE

CLUSTER: Public Service

JOB FAMILY: Travel Guide

SUBJECT AREA: World History

NAME OF COURSE: World History

TIME ALLOWED: Three class periods

MAJOR IDEA: American society because of its wealth and leisure time has a large precentage of people who utilize their vacation time for purposeful travel. Since people have an interest in their history, and most Americans have roots outside of America, many Americans travel abroad. In planning purposeful travel the travel guide is indispensible to the person planning a trip abroad.

OBJECTIVES: Understand the variety of ethnic and cultural inheritance of Americans.

Understand that there are a variety of places outside of the U.S. which can be visited with the purpose of better understanding one's history.

Understand that purposeful travel can be accomplished if a person has the money and leisure time to do so.

Understand that purposeful travel requires much planning and forethought.

Become acquainted with the scope, educational requirements, and activities of the occupation of Travel Guide.

CONTENT:

An exercise in developing an awareness of the cultural diversity of American heritage and an individual's part in it with the dual idea of demonstrating the increased historical knowledge and understanding which can be gained by travel and the kind of work done by a travel guide.

ACTIVITIES:

Have students list the nationalities of both of their parents.

Have students look over the course of study or textbook and match up one country of origin with subject matter they will study.

Have students read the section in the book and make a list of place names mentioned.

Assign students the task of using the library to look up travel information found in magazines or newspapers related to their place list.

Have students plan a trip to the place or places chosen. This should include reason(s) for the trip, itineraries, mode of travel, passport needs, currency information, climate, appropriate wardrobe and custom regulations, cost, and time required.

Have students compose rates and discuss planning problems with them.

Provide students with information about the occupation of travel guide.

Do all assignments and participate in the discussions.

EVALUATION:

1. Someone who has good communication skills, as well as the ability to plan ahead, and coordinate the work of different people might be interested in the job of:

   A. Travel guide
   B. Geographer
   C. Sociologist
   D. Cartographer

2. Which of the following needs to have an appealing manner when dealing with the public?

   A. Anthropologist
   B. Economist
   C. Travel Guide
   D. Cartographer

RESOURCES: Mayour, A., Peoples, J., A World History - Men and Nations, N.Y., Harcourt, Brace, Jovanovich, Inc., 1968.

Any World History Atlas.

Readers Guide to Periodical Literature and back copies of newspapers with travel sections such as the New York Times.

Nesmith, F., McMillan, J., Social Studies Career Opportunities, N.Y., Houghton Mifflin, 1975.

Local speakers from travel agencies or airlines.

American Society of Travel Agents, Education and Training Dept., 711 Fifth Ave., N.Y., N.Y., 10022.

Brochures from Travel Agencies.

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